

RCRA
EPA's
Response



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III

841 Chestnut Building
Philadelphia, Pennsylvania 19107

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Mr. Eric Snyder
Chevron USA, Inc.
30th and Penrose Avenue
Philadelphia, PA 19101

Dear Mr. Snyder:

The Environmental Protection Agency (EPA) has made a final determination under the Resource Conservation and Recovery Act, as amended 42 U.S.C. §6901 et seq, to issue a Corrective Action Permit to Chevron USA, Inc. (EPA I.D. No. 049 791 098). This permit is issued September 27, 1989 and is effective October 27, 1989.

On July 28, 1989, EPA published a public notice under regulation 40 C.F.R. § 124.10 of its tentative decision to issue a draft permit and provided 45 days for any interested person(s) to comment on the draft permit. A public hearing was held on August 31, 1989. EPA has made the determination, based on all the information received during the public comment period and all testimony received at the public hearing, to issue the permit with minor changes. EPA's response to comments is included. This final permit decision is issued under regulation 40 C.F.R. §124.15.

Chevron USA, Inc. or any person who submitted comments on the draft permit, or participated in the public hearing may, under regulation 40 C.F.R. §124.19, petition the Administrator to review the permit decision, provided the appeal is filed by October 27, 1989.

The petition must include a statement of the reasons supporting that review, including a demonstration that any issues being raised were raised during the public comment period (including the public hearing) to the extent required by the regulations governing public comment and hearing (40 C.F.R. §§124.10 and .12). When appropriate, the petitioner should include a showing that the contested decision is based on: (1) a clearly erroneous finding of fact or conclusion of law; or (2) an exercise of discretion or an important policy consideration that the administrator should review in his discretion. A copy of the appeal procedure(s) is enclosed.

The Administrator must issue an order that grants or denies the petition within a reasonable time following the filing of the petition. Public notice of any grant of administrative review under regulation 40 C.F.R. §124.19 must be given as provided in regulation 40 C.F.R. §124.10. The public notice must contain a briefing schedule for the appeal and a statement that any interested persons may file amicus briefs. If review is denied notice need only be sent to the respective petitioners and the permittee.

If you should decide to appeal the permit decision, please direct your petition to:

U.S. Environmental Protection Agency
Office of the Administrator (A-100)
Waterside Mall
401 "M" Street, S.W.
Washington, D.C. 20460

Should you have any questions concerning this matter, please contact Neil Swanson at (215) 597-7937.

Sincerely,

A handwritten signature in dark ink, appearing to read "Stephen R. Wassersug", written in a cursive style.

Stephen R. Wassersug, Director
Hazardous Waste Management Division

Enclosures

Response to Comments
Chevron USA, Inc.
PAD 04 979 1098

The following is a response by EPA to comments submitted by Chevron USA, Inc. (Chevron) on the draft RCRA Corrective Action Permit. A public notice for the draft permit was issued by EPA on July 28, 1989. This response provides EPA's position on the issues raised by Chevron. This Roman Numerical code prior to each response corresponds to the code used by Chevron in its September 15, 1989 comments to the draft permit.

Preface

EPA will include in the Administrative Record all documents, data, correspondence, memoranda and other records generated by EPA and the Permittee used in drafting the EPA Corrective Action Permit except those which are privileged and confidential pursuant to the Freedom of Information Act, 5 U.S.C. §552(b). (See also 40 C.F.R. §124.9)

Part I Discussion of Interpreted Definitions

Chevron believes that the definition of "solid waste management unit" ("SWMU") is expanded beyond the language of RCRA and the intent of Congress.

Region III's definition of SWMU as used in Condition I.E.4 is based on the legislative history of Section 3004(u) and the language in the preamble of the so-called Codification Rule, 50 Fed. Reg. 28712 (July 15, 1985) ("the preamble").

The Agency's cleanup authority under section 3004(u) extends to all "solid waste management units" at a facility seeking a permit under Section 3005(c). The term "solid waste management unit" includes any unit at the facility "from which hazardous constituents might migrate, irrespective of whether the units were intended for management of solid and/or hazardous waste." H.R. Rep. No. 198, 98th Cong., 1st Sess., Part 1, 60 (1983), reprinted in 1984 U.S. Code Cong. & Ad. News 5576, 5619.-20.

The preamble notes further that the term "unit" as used in this context is intended to be defined as in the preamble (sic) to EPA regulations published on July 26, 1982 and as further defined by EPA in the future. 50 Fed. Reg. 28712, quoting H.R. Rep. No. 198, 98th Cong., 1st Sess., Part 1, 60 (1983) ("House Report"). The foregoing clearly demonstrates the Congress intended that EPA, the expert agency charged with the administration and interpretation of RCRA, not only consider traditional units, such as tanks, surface impoundments,

landfills, etc., as SWMUs but to "further define" that term as deemed appropriate by EPA to implement the goals of HSWA.

Chevron proposes that for a unit to be a SWMU, it must have managed a solid waste. Under this proposition, the definition of SWMU would not include "all units from which hazardous constituents might migrate, irrespective of whether the units were intended for the management of solid and/or hazardous wastes."

Part II SWMUs that Require Further Investigation

Empty Lube Drum Storage Area - (SWMU 1)

Chevron submits that this area is not a SWMU as it was used to store empty drums for drum recycling.

EPA defined this area as a SWMU, based on the definition stated in Part I, as releases of residues from the drums were observed on the gravel under the drums. Chevron has agreed to perform a Verification Investigation in this area.

Empty Lube Area Sump - (SWMU 2)

Chevron submits that this is not a SWMU as no solid waste was managed in the sump. However, Chevron states that spillage and runoff from SWMU 1 was received in this sump.

Since releases were observed in the storage area, and SWMU 2 received the runoff; and staining was observed in the sump area, EPA defined the sump as a SWMU. Chevron has agreed to perform a Verification Investigation in this area.

Product Storage Sump - (SWMU 9)

Chevron submits that this sump is not a solid waste management unit because it is a part of the on-site oil recovery system, and therefore has never managed a solid waste.

Staining was noted at this unit at the time of the site investigation. Under the definition of SWMU stated by EPA, this unit would be defined as such, as hazardous constituents might migrate from it, although it may not have been intended for management of solid waste. The permit requires identification of the constituents of the stains.

Tank 355 - (SWMU 13)

Chevron submits that this unit is not a SWMU for the same reasons outlined for the Product Storage Sump (SWMU 9). In addition, the facility states that the tank is regulated under

EPA's UST program, and therefore, should not be part of the corrective action process.

Staining of the concrete surrounding the unit was noted during the site investigation as well as vapors emanating from the tank. For the same reasons identified in Part I and for the Product Storage Sump (SWMU 9), EPA defines this unit as a SWMU. An investigation of the tank is required under EPA's UST program and this assessment may generate the same information as a RCRA investigation. EPA has determined that the permit will require copies of all work plans and work accomplished thus far in the investigation of the unit under the UST program. A determination will be made at that time whether corrective action will be handled under RCRA or Subtitle I.

Tanks 357 and 358 - SWMUs 16 and 17)

Chevron submits that these tanks are not solid waste management units as they do not manage solid waste.

Staining was observed on the area around and under the tanks. EPA defines the unit as a SWMU for the same reasons identified in Part I and for the Product Storage Sump (SWMU 9). Chevron has agreed to perform a Verification Investigation for the area.

Additive Plant Drum Storage Area - (SWMU 30)

Chevron states that this storage area is not a SWMU as the area was used to store drums of raw materials.

EPA file information indicates that lab wastes contained in drums were previously stored in this area. There are no known release controls in this area and file information indicates drums were placed directly on the soil. EPA defines this area as a SWMU, based on the definition stated in Part I, as waste materials were stored here at one time; EPA's definition of a SWMU disregards the time at which wastes were managed in the unit.

Empty Drum Storage Area (SWMU 45)

Chevron submits that this area is not a SWMU for the same reasons stated for the Empty Lube Drum Storage Area (SWMU 1).

EPA defines the unit as a SWMU for the same reasons stated in Part I and for the Product Storage Sump (SWMU 9). Staining was observed on this area. Chevron has agreed to perform a Verification Investigation of this area.

Process Wastewater Pipes - (SWMU 63)

Chevron asserts that these pipes are not SWMUs as they do not manage solid waste. Additionally, these pipes are not units for which Congress intended corrective action to apply.

EPA defines the pipes between the API separators and the wastewater treatment system as a SWMU as they manage wastewater containing hazardous constituents; as defined in Part I, Hazardous constituents have the potential of migrating from this unit. The integrity of the pipes could not be determined as they were underground.

Old Bundle Cleaning Area (SWMU 73)

Chevron submits that this area is not a SWMU, but rather a waste generation site. Moreover, Chevron is presently working with the state on a cleanup plan initiated by a Notice of Violation.

EPA defines this area as a SWMU for the same reasons stated for the Empty Lube Drum Storage Area (SWMU 1).

Since investigation and cleanup of the area will be performed under a PA DER enforcement order and the information generated will be equivalent to that required by the permit, EPA has determined that the investigation will be handled under the PA DER order. The permit requires copies of all information submitted to PA DER.

Drum Storage Area - (SWMU 79)

Chevron submits that this area is not a SWMU as it is not routinely used as a drummed waste storage area.

EPA defines this area as a SWMU for the same reasons stated for the Empty Lube Drum Storage Area (SWMU 1) and the Product Storage Sump (SWMU 9); drummed wastes were observed in this area during the site investigation. Staining was observed in this area.

Since staining was found at this unit, Chevron has agreed to perform a Verification Investigation.

Loading Area Group (SWMU 81-86)

Chevron submits that these areas are not SWMUs as no wastes are managed there. Additionally, the facility states that the potential for release is not high enough to require investigation.

EPA defines these areas as SWMUs for the same reasons as stated for the Empty Lube Drum Storage Area (SWMU 1). Staining was observed in the areas listed in the permit and limited

sampling is required at these units. Due to the type of activity which takes place at these areas, and the cracking and staining of the concrete and containment around these units, EPA has determined there is a high potential for release of hazardous constituents to the environment.

Since the facility was unable to provide a comprehensive list of areas with similar activities, EPA is requiring a report which includes identification and descriptions of the other loading/unloading areas. The report shall include a history of releases. Permit Condition II.A.6.a.(3) allows the facility the opportunity to state that a particular requirement of the Verification Investigation is not applicable and justify this claim based on the Objectives outlined in Permit Condition II.A.6.a.(2). If no history of release is found and staining is not observed in a loading/unloading area, further investigation may not be required.

Area A and B Ballfields (SWMUs 96 and 97)

Chevron submits that these areas are not contiguous property of the facility and therefore are not regulated by RCRA under these corrective action proceedings. Chevron previously sent a letter (dated December 15, 1988) to EPA outlining their position of the matter. EPA sent a reply (dated August 11, 1989) stating the reasons EPA believes the areas to be regulated under RCRA and appropriately handled under these corrective action proceedings. Both letters are attached to this response.

Process Lines and Sumps - (SWMU 100)

Chevron asserts that these pipes are not SWMUs as they never managed solid waste and there is no evidence of systematic release.

Spillage and releases were observed during the site investigation conducted by EPA. Based on the definition of SWMU stated in Part I, EPA defines these pipes as a SWMU and the permit requires integrity testing to determine the source of the releases.

Bulkhead Seepage Area - (SWMU 101)

Chevron submits that this area is not a SWMU as it is not a location where waste was managed.

Based on the definition outlined in Part I, EPA determined that this area is a SWMU as contamination has been found in the soil and ground water. Chevron offered to conduct a Verification Investigation of the area, but since contamination has been found already, a full RCRA Facility Investigation is required.

Part III Information That Chevron Believes To Be Incorrect

Previous Acid Unit - (SWMU 12)

EPA has changed the title of SWMU 12 to Crude Oil Topping Plant to reflect the new information supplied by Chevron.

Tank 357 and 385 - SWMUs 16 and 17)

EPA notes the error and has changed the fact sheet to reflect that SWMU 17 is Tank 358.

Additive Plant Drum Storage Area - (SWMU 30)

Chevron believes that SWMU 30 was incorrectly described as having managed drummed lab wastes. Chevron asserts that this unit only manages raw material.

Based on discussions with Chevron officials during the site investigation EPA believes that this area previously stored lab wastes. EPA defines this area as a SWMU.

Part IV Request For Modified Feed Limits On Metals And Chlorine

Chevron submits that the feed limits on metals and chlorine imposed by EPA are too restrictive for operation of the incinerator. The facility also states that no credit was given for pollution control devices and no partitioning of hazardous constituents to ash is assumed in the model. Additionally, Chevron has suggested incinerator feed rates for metals and chlorine based on the regulatory-based limits required in the PA DER state permit. These limits were developed by PA DER based on the Trial Burn data submitted by the facility.

EPA developed a model for incinerator emissions based on operating pollution control devices and a conservative partitioning of hazardous constituents to the ash. The new EPA feed limits are health-based as opposed to the regulatory-based limits in the state permit. These PA DER feed limits were developed based on the Trial Burn data submitted by Chevron. These metal and chlorine emission levels were not monitored during this Trial Burn and were developed by modeling the incinerator performance. Chevron has not demonstrated to EPA that the feed rates proposed by the facility are protective of human health and the environment. Since the new, more restrictive feed limits set by EPA were intended to be health-based, EPA has determined that the levels set in the permit for metals and chlorine are protective of human health and the environment.

If Chevron believes that the higher incinerator feed rates of metals and chlorine can be protective of human health, they

can submit a new Trial Burn Plan to EPA which includes emission monitoring of these hazardous constituents. If approved, a permit modification would be required before the Trial Burn could be performed.

Part V A Requested Change In the "Dispute Resolution" Clause

Chevron is requesting an addition to the dispute resolution clause which makes allows for the possible invitation of a "facilitator" into the process during an additional 7 day period.

EPA does not feel that the inclusion of a "facilitator" is of any additional beneficial value to the dispute resolution process. Since the facilitator has no final decision authority, inclusion of the facilitator role in the dispute resolution clause is not appropriate.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III

841 Chestnut Building
Philadelphia, Pennsylvania 19107

M.J. Holmes
General Manager
Chevron U.S.A. Inc.
P.O. Box 7408
Phildaelphia, PA 19101

AUG 11 1989

Re: Chevron Philadelphia Refinery
Corrective Action Permit

Dear Mr. Holmes:

In your correspondence of December 15, 1988, you request that the Agency exclude the Ball Field from the RCRA facility assessment because, as you state, the Ball Field is not contiguous to the Chevron facility. The agency is denying your request as set forth below.

As an historical matter, the Agency notes that as early as November, 1980, in its Part A permit application, the former owner Gulf Oil Co. included the Ball Field in its facility description and at no time has there been any request for this parcel to be excluded, until now. Moreover, as a practical matter, only a 26-foot wide paved access road separates the Ball field from the rest of the facility. Chevron has an easement agreement with Sun Oil (formerly Atlantic Refining and Marketing) to use the road for vehicle traffic. Chevron's reliance on a literal interpretation of "contiguity" seems misplaced where separation of the Ball Field from the other part of the facility is so minimal and access from one parcel to the other so readily available.

Finally, as you are aware, the Agency's RFA has revealed the presence of two mounds, Area A Ball Field and Area B Ball Field, which contain contaminated oil. Analytical results on samples taken by the facility from Area A Ball Field indicated elevated levels of base neutrals extractable organics, total cyanide, total phenols and volatile organics. Analytical results on samples taken from Area B Ball Field indicated elevated levels of base neutrals extractable organics area volatile organics, total petroleum hydrocarbons, metal and cyanide. The Agency feels it is acting well within its discretion and the mandate of RCRA corrective action in including the Ball Field in Corrective Action Permit.

For further questions please contact Linda Carlson of my staff at (215) 597-1601.

Sincerely,

A handwritten signature in dark ink, appearing to read "Neil R. Swanson". The signature is fluid and cursive, with a long horizontal stroke extending to the right.

Neil R. Swanson, Chief
Pennsylvania Permits Section
Waste Management Branch



Chevron U.S.A. Inc.
P.O. Box 7408, Philadelphia, PA 19101

Philadelphia Refinery

December 15, 1988

Mr. Gil Horwitz
U. S. Environmental Protection Agency
841 Chestnut Street
Philadelphia, PA 19107

Dear Mr. Horwitz:

EPA has initiated a RCRA facility assessment of the Chevron Philadelphia Refinery. As part of the assessment, EPA's contractor, A. T. Kearney, conducted an inspection of the Refinery on November 17 and 18, 1988.

During the inspection, A. T. Kearney investigated a parcel property, commonly known as the "Ball Field". The Ball Field property, which is located east of the Refinery, is separated from the Refinery property by a strip of land owned by Atlantic Refining Company. This strip of land is currently being used as a private road (e.g., Lanier Avenue). At no point is the Ball Field contiguous to any of the Refinery property (see the attached diagram). To the best of our knowledge, there are no pipelines or other appurtenances linking the two properties.

Under the Hazardous and Solid Waste Amendments of 1984 (HSWA), EPA has the ability to undertake RCRA corrective action with respect to all solid waste management units that are part of a "facility" where a RCRA hazardous waste management unit is located. EPA has interpreted the term "facility" as covering only those properties that are contiguous to the site where the RCRA hazardous waste management units are located.

Since the Ball Field property is not contiguous to the Refinery, and since the Ball Field has no RCRA hazardous waste management units that would trigger RCRA corrective action, it would be outside the statutory structure of HSWA to extend the RCRA facility assessment to include the Ball Field properties.

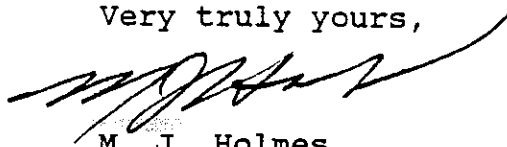
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EPA, DC

Based on the above information, we respectfully request that the Ball Field properties be excluded from the RCRA facility assessment.

Questions regarding this matter should be directed to Mr. Eric Schneider at (215) 339-7364.

Very truly yours,



M. J. Holmes
General Manager

FLH/tml
attachment

cc: Mr. A. T. Kearney

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(6) Other documents contained in the supporting file for the permit; and
(7) The final permit.

(c) The additional documents required under paragraph (b) of this section should be added to the record as soon as possible after their receipt or publication by the Agency. The record shall be complete on the date the final permit is issued.

(d) This section applies to all final RCRA, UIC, PSD, and NPDES permits when the draft permit was subject to the administrative record requirements of § 124.9 and to all NPDES permits when the draft permit was included in a public notice after October 12, 1979.

(e) Material readily available at the issuing Regional Office, or published materials which are generally available and which are included in the administrative record under the standards of this section or of § 124.17 ("Response to comments"), need not be physically included in the same file as the rest of the record as long as it is specifically referred to in the statement of basis or fact sheet or in the response to comments.

§ 124.19 Appeal of RCRA, UIC, and PSD permits.

(a) Within 30 days after a RCRA, UIC, or PSD final permit decision has been issued under § 124.15, any person who filed comments on that draft permit or participated in the public hearing may petition the Administrator to review any condition of the permit decision. Any person who failed to file comments or failed to participate in the public hearing on the draft permit may petition for administrative review only to the extent of the changes from the draft to the final permit decision. The 30-day period within which a person may request review under this section begins with the service of notice of the Regional Administrator's action unless a later date is specified in that notice. The petition shall include a statement of the reasons supporting that review, including a demonstration that any issues being raised were raised during the public comment period (including any public hearing) to the extent required by these regulations and when appro-

priate, a showing that the condition in question is based on:

(1) A finding of fact or conclusion of law which is clearly erroneous, or

(2) An exercise of discretion or an important policy consideration which the Administrator should, in his or her discretion, review.

(b) The Administrator may also decide on his or her initiative to review any condition of any RCRA, UIC, or PSD permit issued under this part. The Administrator must act under this paragraph within 30 days of the service date of notice of the Regional Administrator's action.

(c) Within a reasonable time following the filing of the petition for review, the Administrator shall issue an order either granting or denying the petition for review. To the extent review is denied, the conditions of the final permit decision become final agency action. Public notice of any grant of review by the Administrator under paragraph (a) or (b) of this section shall be given as provided in § 124.10. Public notice shall set forth a briefing schedule for the appeal and shall state that any interested person may file an amicus brief. Notice of denial of review shall be sent only to the person(s) requesting review.

(d) The Administrator may defer consideration of an appeal of a RCRA or UIC permit under this section until the completion of formal proceedings under Subpart E or F relating to an NPDES permit issued to the same facility or activity upon concluding that:

(1) The NPDES permit is likely to raise issues relevant to a decision of the RCRA or UIC appeals;

(2) The NPDES permit is likely to be appealed; and

(3) Either: (i) The interests of both the facility or activity and the public are not likely to be materially adversely affected by the deferral; or

(ii) Any adverse effect is outweighed by the benefits likely to result from a consolidated decision on appeal.

(e) A petition to the Administrator under paragraph (a) of this section is, under 5 U.S.C. 704, a prerequisite to the seeking of judicial review of the final agency action.

(f)(1) For purposes of judicial review under the appropriate Act, final

Environmental Protection Agency

agency action occurs when a final RCRA, UIC, or PSD permit is issued or denied by EPA and agency review procedures are exhausted. A final permit decision shall be issued by the Regional Administrator:

(i) When the Administrator issues notice to the parties that review has been denied; (ii) when the Administrator issues a decision on the merits of the appeal and the decision does not include a remand of the proceedings; or (iii) upon the completion of remand proceedings if the proceedings are remanded, unless the Administrator's remand order specifically provides that appeal of the remand decision will be required to exhaust administrative remedies.

(2) Notice of any final agency action regarding a PSD permit shall promptly be published in the FEDERAL REGISTER.

§ 124.20 Computation of time.

(a) Any time period scheduled to begin on the occurrence of an act or event shall begin on the day after the act or event.

(b) Any time period scheduled to begin before the occurrence of an act or event shall be computed so that the period ends on the day before the act or event.

(c) If the final day of any time period falls on a weekend or legal holiday, the time period shall be extended to the next working day.

(d) Whenever a party or interested person has the right or is required to act within a prescribed period after the service of notice or other paper upon him or her by mail, 3 days shall be added to the prescribed time.

§ 124.21 Effective date of Part 124.

(a) Except for paragraphs (b) and (c) of this section, Part 124 will become effective July 18, 1980. Because this effective date will precede the processing of any RCRA or UIC permits, Part 124 will apply in its entirety to all RCRA and UIC permits.

(b) All provisions of Part 124 pertaining to the RCRA program will become effective on November 19, 1980.

(c) All provisions of Part 124 pertaining to the UIC program will become

effective July 18, 1980, but shall not be implemented until the effective date of 40 CFR Part 146.

(d) This part does not significantly change the way in which NPDES permits are processed. Since October 12, 1979, NPDES permits have been the subject to almost identical requirements in the revised NPDES regulations which were promulgated on June 7, 1979. See 44 FR 32948. To the extent this part changes the revised NPDES permit regulations, those changes will take effect as to all permit proceedings in progress on July 3, 1980.

(e) This part also does not significantly change the way in which PSD permits are processed. For the most part, these regulations will also apply to PSD proceedings in progress on July 18, 1980. However, because it would be disruptive to require retroactively a formal administrative record for PSD permits issued without one, §§ 124.9 and 124.18 will apply to PSD permits for which draft permits were prepared after the effective date of these regulations.

Subpart B—Specific Procedures Applicable to RCRA Permits [Reserved]

Subpart C—Specific Procedures Applicable to PSD Permits

§ 124.41 Definitions applicable to PSD permits.

Whenever PSD permits are processed under this part, the following terms shall have the following meanings:

"Administrator," "EPA," and "Regional Administrator" shall have the meanings set forth in § 124.2, except when EPA has delegated authority to administer those regulations to another agency under the applicable subsection of 40 CFR 52.21, the term "EPA" shall mean the delegate agency and the term "Regional Administrator" shall mean the chief administrative officer of the delegate agency.

"Application" means an application for a PSD permit.

"Appropriate Act and Regulations" means the Clean Air Act and applicable regulations promulgated under it.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

PERMIT

CORRECTIVE ACTION & WASTE MINIMIZATION

UNDER THE HAZARDOUS AND SOLID WASTE

AMENDMENTS OF 1984

Permittee: Chevron USA, Inc.

Facility Location: 30th Street and Penrose Avenue, Philadelphia, PA

EPA Identification Number: PAD 04 979 1098

Effective Date: October 27, 1989

Expiration Date: October 26, 1999

This permit is issued by the United States Environmental Protection Agency (EPA) under authority of the Resource Conservation and Recovery Act, Subtitle C, 42 U.S.C. §§6921-6939B (1976, as amended by Supp. IV, 1980 (RCRA), and the Hazardous and Solid Waste Amendments of 1984 (HSWA)) and EPA regulations, to Chevron (Gulf) USA, Inc., Philadelphia Refinery, 30th Street and Penrose Avenue, Philadelphia, Pennsylvania, (hereafter called the Permittee), to meet the requirements of HSWA for corrective action for all releases from solid waste management units, demonstrate financial assurance for same and minimize the generation of hazardous waste. The facility is located at latitude 38° 54' 180"N and longitude 75° 12' 310"W.

The Permittee must comply with all terms and conditions of this permit. This permit consists of the conditions contained herein (Parts I-III and attachments) and the applicable regulations contained in 40 C.F.R. Parts 260 through 264, 124 and 270 as specified in the permit. Applicable regulations are those which are in effect on the date of issuance of this permit. (See 40 C.F.R. §270.32(c)).

This permit is based on the assumption that the information provided to EPA by the Permittee is accurate. Further, this permit is based in part on the provisions of Sections 206, 212, and 224 of the Hazardous and Solid Waste Amendments of 1984, which modify Sections 3004 and 3005 of RCRA. In particular, Section 206 requires corrective action for all releases of hazardous waste or constituents from any solid waste management unit at a treatment, storage or disposal facility seeking a permit, regardless of the time at which waste was placed in such unit. Section 212 provides authority to review and modify the permit at any time. Any inaccuracies found in the submitted information may be grounds for the termination, modification or revocation and reissuance of this permit (see 40 C.F.R. §270.41, §270.42 and §270.43) and potential enforcement action. The Permittee must inform EPA of any deviation from or changes in the information in the application which would affect the Permittee's ability to comply with the applicable regulations or permit conditions.

This permit is effective as of October 27, 1989, and shall remain in effect until October 26, 1999, unless revoked and reissued, modified or terminated in accordance with 40 C.F.R. §270.41, §270.42 or §270.43, or continued in accordance with 40 C.F.R. §270.51(a).

PART I - STANDARD CONDITIONS

A. EFFECT OF PERMIT

This permit authorizes only the management of hazardous waste expressly described in this permit and does not authorize any other management of hazardous waste. EPA will consider compliance with the terms of this permit to be compliance with the requirements of RCRA Subtitle C.

The full RCRA permit is comprised of EPA's portion, which addresses the provisions of the Hazardous and Solid Waste Amendments of 1984, and the Pennsylvania Department of Environmental Resources' portion, which addresses the provisions of RCRA for which the Commonwealth of Pennsylvania is authorized. The Commonwealth of Pennsylvania is authorized to administer and enforce those portions of RCRA that were in effect November 7, 1984, prior to the enactment of the Hazardous and Solid Waste Amendments of 1984.

This portion of the permit, which addresses the Hazardous and Solid Waste Amendments of 1984, will be enforced by EPA. 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 invasion of other private rights, or any infringement of State or local laws or regulations (40 C.F.R. §§270.30(g) and 270.4(b) and (c)). Compliance with the terms of this permit does not constitute a defense to any action brought under Section 7003 of RCRA (42 U.S.C. §6973), Section 106(a) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended, (42 U.S.C. §9606(a)) (commonly known as CERCLA), or any other law governing protection of public health or the environment.

Nothing contained herein shall in any way be deemed to waive the Permittee's obligation to comply with 40 C.F.R. Part 270, Subpart C, and applicable regulations set forth at 40 C.F.R. Part 124.

B. PERMIT ACTIONS

This permit may be modified, revoked and reissued, or terminated for cause as specified in 40 C.F.R. §§270.41, 270.42, and 270.43. The filing of a request for a permit modification, revocation and reissuance, or termination or the notification of planned changes or anticipated noncompliance on the part of the Permittee, does not stay the applicability or enforceability of any permit condition (40 C.F.R. §270.30(f)). Review of any application for a

permit renewal shall consider improvements in the state of control and measurement technology, as well as changes in applicable regulations and laws.

C. PERMIT CONDITIONS

Pursuant to Section 3005(c)(3) of RCRA, this permit contains those terms and conditions determined necessary to protect human health and the environment (40 C.F.R. §270.32(b)(2)).

D. 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 circumstances and the remainder of this permit shall not be affected thereby (40 C.F.R. §124.16(a)(2)).

E. DEFINITIONS

For the purpose of this permit, terms used herein shall have the same meaning as those set forth in Title 40 of the Code of Federal Regulations (40 C.F.R. Parts 260 through 264 and 270), unless this permit specifically states otherwise. Where terms are not otherwise defined, the meaning associated with such terms shall be as defined by a standard dictionary reference or the generally accepted scientific or industrial meaning of the terms. The following definitions also apply to this permit.

1. Regional Administrator - Regional Administrator of the United States Environmental Protection Agency for the Mid-Atlantic Region (Region III), his designee or authorized representative.
2. Director - Director of the Pennsylvania Department of Environmental Resources, Bureau of Waste Management, his/her designee or authorized representative.
3. Release - any spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing into the environment.
4. Solid Waste Management Unit - any discernible unit at a facility seeking a RCRA permit from which hazardous waste or hazardous constituents might migrate, irrespective of whether the unit was intended for the management of solid and/or hazardous waste.
5. Facility - all contiguous property under the control of the owner or operator at which the units subject to

permitting are located (except for permit condition I.I.10).

F. REPORTS, NOTIFICATIONS AND SUBMISSIONS TO THE REGIONAL ADMINISTRATOR

All reports, notifications or other submissions which are required by this permit to be sent or given to the Regional Administrator or EPA should be sent Certified Mail or given to:

Hazardous Waste Management Division
EPA Region III
841 Chestnut Street
Philadelphia, Pennsylvania 19107
Telephone Number: (215) 597-8131
Attention: Stephen R. Wassersug, Director

G. SIGNATORY REQUIREMENTS

All reports or other information submitted to the Regional Administrator and the Director shall be signed and certified as required by 40 C.F.R. §§270.11(b) and 270.30(k).

H. DOCUMENTS TO BE MAINTAINED AT THE FACILITY SITE

The Permittee shall maintain at the facility all documents required by this permit and amendments, revisions and modifications to these documents. The Permittee shall maintain at the facility a written operating record that complies with all the requirements of 40 C.F.R. §264.73.

I. DUTIES AND REQUIREMENTS

1. Duty to Comply. The Permittee shall comply with all conditions of this permit, except to the extent and for the duration such noncompliance is authorized by an emergency permit. Any other permit noncompliance constitutes a violation of RCRA and is grounds for enforcement action, permit termination, revocation and reissuance, or modification, or for denial of a permit renewal application. (40 C.F.R. §270.30(a))
2. Duty to Reapply. If the Permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the Permittee must submit a complete application for a new permit at least 180 days before this permit expires. (40 C.F.R. §§270.10(h) and 270.30(b))

3. Permit Expiration and Continuation. Pursuant to 40 CFR §270.50, this permit shall be effective for a fixed term not to exceed ten years. Pursuant to 40 CFR §270.51, this permit and all conditions herein will remain in effect beyond the permit's expiration date if the Permittee has submitted a timely and complete application (see 40 C.F.R. §270.10 and §§270.14 - 270.29) and through no fault of the Permittee, the Regional Administrator or Director has not issued a new permit under 40 C.F.R. §124.15.
4. Need to Halt or Reduce Activity Not a Defense. It shall not be a defense for the Permittee 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. (40 C.F.R. §270.30(c))
5. Duty to Mitigate. In the event of noncompliance with this permit, the Permittee shall take all reasonable steps to minimize releases to the environment, and shall carry out such measures as are reasonable to prevent significant adverse impacts on human health or the environment. (40 C.F.R. §270.30(d))
6. Proper Operation and Maintenance. The Permittee shall at all times properly operate and maintain all facilities and systems of treatment, monitoring, and control (and related appurtenances) which are installed or used by the Permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance includes effective performance, adequate funding, adequate operator staff staffing and training, and adequate laboratory and process controls, including appropriate quality assurance procedures. This provision requires the operation of back-up auxiliary facilities or similar systems when necessary to maintain compliance with the conditions of the permit. (40 C.F.R. §270.30(e))
7. Duty to Provide Information. The Permittee shall furnish, within a reasonable time, any relevant information which the Regional Administrator or Director may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. The Permittee shall also furnish to the Regional Administrator or Director, upon request, copies of records required to be kept by this permit. (40 C.F.R. §§270.30(h) and 264.74(a))

8. Inspection and Entry. Pursuant to 40 C.F.R. §270.30(i), the Permittee shall allow the Regional Administrator or Director, or an authorized representative, upon the presentation of credentials and other documents as may be required by law, to:
- a. Enter at reasonable times upon the Permittee'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 purpose of assuring permit compliance or as otherwise authorized by RCRA, any substances or parameters at any location.
9. Monitoring and Records. Pursuant to 40 C.F.R. §270.30(j), the Permittee shall comply with the following requirements.
- a. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity. All sampling and analysis shall be of adequate quality, scientifically valid, of known precision and accuracy, and of acceptable completeness, representativeness and comparability. Laboratory analysis of samples must be performed using an appropriate method for testing the parameter(s) of interest taking into account the samples matrix. Use of the test methods found in the Agency publication, Test Methods for Evaluating Solid Waste, Physical/ Chemical Methods, (SW-846), shall be used for: the EP toxicity test and the analytical methods used to determine the EP toxicity test analyses (40 C.F.R. §261.24); the Free Liquids Test (Method 9095) used to determine if free liquid is a component of a waste as a specific requirement for bulk and containerized wastes (40 C.F.R. §264.213 and §265.213(d)); and the chemical analysis of wastes for hazardous waste incineration permits (40 C.F.R. §270.62(b)(2)(C)).

b. The Permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports and records required by this permit, and records of all data used to complete the application for this permit for a period of at least three (3) years from the date of the sample, measurement, report, certification or application. These periods may be extended by request of the Regional Administrator or Director at any time and are automatically extended during the course of any unresolved enforcement action regarding this facility. The Permittee shall maintain records from all ground-water monitoring wells and associated ground-water surface elevations, for the active life of the facility, and for disposal facilities for the post-closure care period as well.

c. Records of monitoring information shall specify:

- (1) The date, exact place, and time of sampling or measurements;
- (2) The individual(s) who performed the sampling or measurements;
- (3) The date(s) analyses were performed;
- (4) The individual(s) who performed the analyses;
- (5) The analytical techniques or methods used; and
- (6) The results of such analyses.

10. Reporting Planned Changes and Anticipated Noncompliance. The Permittee shall give notice to the Regional Administrator and Director, at least 30 days prior to any planned physical alterations or additions to the permitted facility. The Permittee shall give the Regional Administrator and Director at least 45 days advance notice of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements (40 C.F.R. §§270.30(1)(1) and (2)).

For purposes of this permit condition, I.I.10, only the definition of "facility" in 40 C.F.R. §260.10 shall apply.

11. Transfer of Permit. In accordance with 40 C.F.R. §270.30(1)(3), this permit is not transferable to any person, except after notice to the Regional Administrator and Director. The Regional Administrator or Director may require modification or revocation and reissuance of the permit to identify the new Permittee and incorporate such other requirements as may be necessary under RCRA (40 C.F.R. §270.40). At least 30 days prior to transferring ownership or operation of the facility during its operating life, the Permittee shall notify the new owner or operator in writing of the requirements of 40 C.F.R. Parts 264 and 270, and at the same time shall send a copy of such notice to the Regional Administrator and Director.
12. Twenty-four Hour Reporting. Pursuant to 40 C.F.R. §270.30(1)(6), the Permittee shall report to the Regional Administrator and Director any noncompliance which may endanger health or the environment. Information shall be provided orally as soon as possible, but no later than twenty-four (24) hours from the time the Permittee becomes aware of the circumstances. This report shall include the following:
- a. Information concerning release of any hazardous waste or hazardous constituent that may cause an endangerment to public drinking water supplies.
 - b. Any information of a release or discharge of hazardous waste, hazardous constituent or of a fire or explosion from the facility, which could threaten the environment or human health 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 hazards 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.
- c. A written submission shall also be provided to the Regional Administrator and Director within five (5) days of the time the Permittee becomes aware of the circumstances. 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 reoccurrence of the noncompliance. The Permittee need not comply with the five (5) day written notice requirement if the Regional Administrator waives that requirement and the Permittee submits a written report within fifteen (15) days of the time the Permittee becomes aware of the circumstances.
13. Immediate Reporting of Releases. In accordance with the requirements of 40 C.F.R. §264.56(d)(1) and (2), if the facility's emergency coordinator determines that the facility has had a release, fire, or explosion which could threaten human health, or the environment, outside the facility, he must report his findings as follows:
- a. If his assessment indicates that evacuation of local areas may be advisable, he must immediately notify appropriate local authorities. He must be available to help appropriate officials decide whether local areas should be evacuated; and
- b. He must immediately notify either the government official designated as the On-Scene Coordinator for that geographical area, (in the applicable regional contingency plan under 40 C.F.R. Part 1510) or the National Response Center (800/424-8802). The report must contain the information required under 40 C.F.R. §264.56(d)(2)(i) through (vi).
14. Other Noncompliance. The Permittee shall report all other instances of noncompliance not otherwise required to be reported above, at the time monitoring reports are submitted. The reports shall contain the information listed in permit condition I.I.12 (40 C.F.R. §270.30(1)(10)).
15. Other Information. Whenever the Permittee becomes aware that it failed to submit any relevant facts in the permit application, or submitted incorrect

information in a permit application or in any report to the Regional Administrator and Director, the Permittee shall notify the Regional Administrator and Director of such failure within 7 days. The Permittee shall submit the correct or additional information to the Regional Administrator or Director no later than 14 days of becoming aware of the deficiency (40 C.F.R. §270.30(1)(11)).

16. Compliance Schedule. Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this permit shall be submitted no later than fourteen (14) days following each schedule date. (40 C.F.R. §270.30(1)(5))
17. Biennial Report. Pursuant to 40 C.F.R. §270.30(1)(9), a report must be submitted to the Regional Administrator or Director, as appropriate, covering facility activities by March 1 of odd numbered calendar years. The report shall contain the information required in 40 C.F.R. §264.75.
18. Manifest Discrepancy Report. Pursuant to 40 C.F.R. §270.30(1)(7), if a discrepancy in a manifest is discovered, the permittee must attempt to reconcile the discrepancy. If not resolved within fifteen (15) days of discovery, the permittee must submit a letter report, including a copy of the manifest, to the Regional Administrator or Director, as appropriate. (See 40 C.F.R. §264.72)
19. Unmanifested Waste Report. Pursuant to 40 C.F.R. §270.30(1)(8), if the Permittee receives unmanifested waste it must report such waste to the Regional Administrator or Director no later than fifteen (15) days after its receipt. (See 40 C.F.R. §264.76).
20. Land Disposal Restriction. All activities of the Permittee which involve the land disposal of hazardous waste are subject to the Land Disposal Restrictions. (See sections 3004(b)-(m) of RCRA, 42 U.S.C. §6904(b)-(m)).

PART II - SPECIFIC CONDITIONS

A. CORRECTIVE ACTION FOR CONTINUING RELEASES

Section 3004(u) of RCRA (Section 206 of the Hazardous and Solid Waste Amendments of 1984) and regulations promulgated at 40 CFR §264.101, require corrective action for all releases of hazardous waste or constituents from any solid waste management unit, regardless of when waste was placed in the unit, for all permits issued after November 8, 1984.

This permit requires the Permittee to conduct a Verification Investigation and, if necessary, a RCRA Facility Investigation (RFI) for suspected releases from specified solid waste management units. These Verification Investigation requirements are based upon information previously provided by the Permittee which indicated either that a release of hazardous waste or hazardous waste constituents has or is occurring or that a high potential exists for an undetected or future release from these SWMUs. If releases are verified through the initial work of the Verification Investigation, the Permittee must perform a RCRA Facility Investigation (RFI). The Permittee shall prepare a Corrective Measure Study based on the results of the RFI. Three copies of all plans and results shall be submitted to EPA.

If EPA finds that corrective measures are warranted, EPA will propose a major permit modification and follow appropriate procedures, including a public notice period and a public hearing, if necessary.

Specific requirements for each solid waste management unit are outlined in the following paragraphs. General requirements for Verification Investigation and RFI work plans are outlined in Attachments A and B, respectively. General requirements for Sampling and Analysis Programs are outlined in Attachment C. Reporting requirements for an RFI are outlined in Attachment D. The scope of work for a Corrective Measures Study is outlined in Attachment E. Examples of action level concentrations are provided in Attachment F.

1. Empty Lube Oil Drum Storage Area (SWMU 1)
Trash Incinerator (SWMU 6)
Additive Plant Drum Storage Area (SWMU 30)
Empty Drum Storage Area (SWMU 45)
Drum Storage Area (SWMU 79)
 - a. Within 120 calendar days of the effective date of this permit, the Permittee shall submit to the

Regional Administrator for approval and to the Director, a Verification Investigation Work Plan to take place at the above units.

(1) Verification Investigation Objectives:

- (a) Establish the presence or absence of hazardous waste or hazardous waste constituents in the area of each unit;
- (b) Establish whether there is or has been migration of hazardous waste or hazardous waste constituents from the units to the soil and/or groundwater; and
- (c) Establish criteria to be used to determine if further investigation is required.

(2) Verification Investigation Plan Requirements:

- (a) The plan shall comply with the format and all applicable requirements set forth in Attachments A and C of this permit, in addition to the specific requirements set forth below. If the Permittee believes that certain requirements are not applicable, the specific requirements shall be identified and the rationale for inapplicability shall be provided in the Verification Investigation Work Plan.
- (b) The plan shall include provisions for soil sampling to be conducted as necessary to meet the verification investigation objectives. The soil sampling program shall include, at minimum, the following:
 - (i) A minimum of one surface sample should be collected from areas where staining is observed;
 - (ii) Sampling shall be conducted based on a grid system developed for the entire area (borings shall be at a depth necessary to address releases from the unit, justification of the grid system dimensions shall be provided in the plan);
 - (iii) The sampler shall record visual observations of the appearance of the

soil over the entire depth of the boring; and

(iv) Each boring shall be tested at completion for volatile emissions from soils using a flame ionization detector or a photo-ionization detector.

(c) The plan shall include at a minimum the Skinner List of constituents, as set forth in Attachment A.5.a., as the parameters to be analyzed in the samples from the Empty Lube Oil Drum Storage Area (SWMU 1), Trash Incinerator (SWMU 6), Additive Plant Drum Storage Area (SWMU 30), and Old Bundle Cleaning Area (SWMU 73). The plan shall include, at a minimum, the metals, volatiles and semi-volatiles listed in 40 CFR 264, Appendix IX (see Attachment A.5.b) for samples from Empty Drum Storage Area (SWMU 45) and Drum Storage Area (SWMU 79).

- ~~b. Within 180 calendar days of receipt of approval by the Regional Administrator of the Verification Investigation Work Plan, the Permittee shall implement the plan and submit the results of the Verification Investigation to the Regional Administrator for approval and to the Director.~~
- c. If the Regional Administrator determines that there is a need for additional verification investigation, the Regional Administrator shall advise the Permittee in writing of his determination, and the reasons therefore. The Permittee shall submit to the Regional Administrator for approval a plan to perform the additional investigations meeting the requirements and schedules provided in the plan within 90 calendar days of notification of such determination.
- d. If the Regional Administrator determines that there is a need for a RFI based on the Verification Investigation results, the Regional Administrator shall notify the Permittee in writing of his determination, and the reasons therefore. The Permittee shall submit a RFI Work Plan to the Regional Administrator for approval within 90 calendar days of notification of such determination. The RFI Work Plan shall meet the following objectives and requirements.

(1) RFI Work Plan Objectives:

- (a) Characterize the nature, extent, and rate of migration of releases to soil and groundwater from the area; and
- (b) Determine the criteria for and scope of corrective measures.

(2) RFI Work Plan Requirements:

- (a) The RFI Work Plan shall comply with the format and all requirements set forth in Attachments B and C of this permit, in addition to the specific requirements set forth below. If the Permittee believes that certain requirements are not applicable, the specific requirement shall be identified and the rationale for inapplicability shall be provided in the RFI Work Plan;
 - (b) The plan shall include provisions for soil sampling as necessary to meet the RFI objectives. The plan shall fully describe the rationale for surface sampling locations, vertical sampling intervals and the criteria used to determine the deepest sample;
 - (c) The plan shall include provisions for groundwater monitoring as necessary to meet the RFI objectives. The monitoring plan shall include the rationale for the location of all wells both areally and vertically; and
 - (d) The plan shall include a list of parameters to be analyzed in samples taken during the course of the RFI, including at a minimum the Skinner List of constituents set forth in Attachment A5.a for the samples from the Empty Lube Oil Drum Storage Area (SWMU 1), Trash Incinerator (SWMU 6), Additive Plant Drum Storage Area (SWMU 30), and Old Bundle Clearing Area (SWMU 73). The plan shall include at a minimum, the metals, volatiles, and semi-volatiles listed in 40 CFR 264, Appendix IX (see Attachment A.5.b) for samples from the Empty Drum Storage Area (SWMU 45) and Drum Storage Area (SWMU 79).
- e. Within 90 calendar days of receipt of approval by the Regional Administrator of the RFI Work Plan, the

Permittee shall complete all steps provided in the plan as prerequisites to RFI activities, including installation of monitoring wells, shall initiate RFI activities, and shall report its progress in completing these activities to the Regional Administrator and to the Director.

- f. Within 455 calendar days of receipt of approval by the Regional Administrator of the RFI Work Plan, the Permittee shall complete all steps in the plan and shall submit results of the RFI to the Regional Administrator and to the Director. Quarterly progress reports shall be submitted to the Regional Administrator and to the Director, beginning 180 calendar days after approval of the RFI Work Plan by the Regional Administrator and each 90 calendar days thereafter. Each quarterly progress report shall include, at a minimum, the results of all sampling and analysis activities conducted during the quarter.
- g. If the Regional Administrator determines that there is a need for continued monitoring under the approved RFI Work Plan, the Regional Administrator shall notify the Permittee in writing of his/her determination, and the reasons therefore. The Permittee shall continue monitoring activities in accordance with the plan and shall continue to submit quarterly progress reports to the Regional Administrator and to the Director. The first quarterly progress report shall be submitted within 90 calendar days of notification of the need for continued monitoring and each 90 days thereafter.
- h. If the Regional Administrator determines that there is a need for continued monitoring under a modified RFI Work Plan, the Regional Administrator shall notify the Permittee in writing of his/her determination, and the reasons therefore. The Permittee shall submit a modified RFI Work Plan to the Regional Administrator for approval within 30 calendar days of notification of the need for a modified plan. The Permittee shall continue to submit progress reports in accordance with an approved time interval to the Regional Administrator and to the Director.
- i. If the Regional Administrator determines that there is a need for corrective measures based on the results of the RFI the Regional Administrator shall notify the Permittee in writing of his/her determination, and the reasons therefore. The Permittee shall submit to EPA for approval a work

plan for a Corrective Measures Study within 90 calendar days of notification of such determination. The work plan shall comply with all the requirements set forth in Attachment E of this permit.

j. The Regional Administrator's determination for the necessity of a Corrective Measure Study shall be based on the following:

- (1) When the action levels found in Attachment F are exceeded by contaminant concentrations measured during the RFI; and
- (2) When the action levels developed by the Permittee are exceeded by contaminant concentrations measured during the RFI.

k. The Permittee shall develop action levels for those contaminants listed in Attachment A for which regulatory proposed action levels have not been developed. The action levels developed by the Permittee shall be submitted to the Regional Administrator and to the Director simultaneously with the submission of the RFI results required in Permit Condition II A.1.f. The Permittee shall develop action levels based on:

- (1) For ground water contaminant concentrations, action levels which meet the criteria specified below:
 - (a) Maximum contaminant levels (MCLs) promulgated under the Safe Drinking Water Act, 42 U.S.C. §300g-1 (40 CFR Part 141 Subpart B); or
 - (b) For hazardous constituents for which MCLs have not been promulgated, a concentration which satisfies the following criteria, assuming exposure through consumption of the ground water contaminated with the hazardous constituent:
 - (i) Is derived in a manner consistent with Agency guidelines for assessing the health risks of environmental pollutants which were published in the Federal Register on September 24, 1986 (51 FR 33992, 34006, 34014, 34028); and

- (ii) Is based on scientifically valid studies conducted in accordance with the Toxic Substances Control Act (TSCA), 15 U.S.C. §2603, Good Laboratory Practice Standards (40 CFR Part 792), or equivalent; and
- (iii) For carcinogens, represents a concentration associated with an excess upper bound lifetime cancer risk of 1×10^{-6} due to continuous constant lifetime exposure, and considers the overall weight of evidence of carcinogenicity; and
- (iv) For systemic toxicants, represents a concentration to which the human population (including sensitive subgroups) could be exposed on a daily basis that is likely to be without appreciable risk of deleterious effects during a lifetime.

- ~~(2) For air contaminant concentrations, action levels which meet the criteria specified in Permit Condition II.A.1.k.(1)(b)(i)-(iv), assuming exposure through inhalation of the air contaminated with the hazardous constituent, as measured or calculated at the unit boundary.~~
- (3) For surface water contaminant concentrations, action levels which meet the criteria specified below:
 - (a) Water Quality Standards established pursuant to Section 303(c) of the Clean Water Act, 33 U.S.C. §1251 et. seq. (40 CFR Part 131) by the Commonwealth of Pennsylvania, where such standards are expressed as numerical concentration limits; or
 - (b) MCLs promulgated under the Safe Drinking Water Act, 42 U.S.C. §300g-1, for hazardous constituents in surface waters designated by the Commonwealth of Pennsylvania for drinking water supply, where Water Quality Standards described in paragraph (a) above have not been established; or
 - (c) For hazardous constituents in surface waters designated by the Commonwealth of Pennsylvania for drinking water supply for

which Water Quality Standards described in paragraph (a) above or MCLs have not been established, a concentration which meets the criteria specified in Permit Condition II.A.1.k.(1)(b)(i)-(iv), assuming exposure through consumption of the water contaminated with the hazardous constituent; or

(d) For hazardous constituents in surface waters designated for a use or uses other than drinking water supply and for which water quality standards described in paragraph (a) above have not been established, a concentration established by the Permittee which meets the criteria specified in Permit Condition II.A.1.k.(1)(b)(i)-(iv), considering the use or uses of the receiving waters.

(4) For soils contaminant concentrations, action levels which meet the criteria specified in Permit Condition II.A.1.k.(1)(b)(i)-(iv), assuming exposure through consumption of the soil contaminated with the hazardous constituent.

1. If, for a contaminant constituent(s) detected in ground water in an aquifer, air, surface water or soils, a concentration level that meets the criteria of Permit Condition II.A.1.k.(1)-(4) is not submitted by the Permittee with the RFI results as required by Permit Condition II.A.1.k, the Regional Administrator may establish an action level for the hazardous constituent as:

- (1) A level that is an indicator for protection of human health and the environment, using the exposure assumptions for the medium specified under Permit Condition II.A.1.k.(1)-(4); or
- (2) The background concentration of the hazardous constituent.

m. Within 60 calendar days of receipt of approval by the Regional Administrator of the CMS Work Plan, the Permittee shall initiate the CMS and shall report its progress in completing the study by the tenth (10th) day of every month to the Regional Administrator and to the Director. The Permittee shall comply with all requirements set forth in Attachment E of this permit for reporting and completion of the CMS.

- n. When developing RFI and CMS workplans and Reports, the Permittee shall consider the most recent published RCRA guidance documents and shall consult with EPA to determine the appropriate sections of the guidance to be used.
- 2. Empty Lube Area Sump (SWMU 2)
Product Storage Sump (SWMU 9)
Tank 355 (SWMU 13)
 - a. Within 120 calendar days of the effective date of this permit, the Permittee shall submit to the Regional Administrator for approval and to the Director a Verification Investigation Work Plan for the above units.
 - (1) Verification Investigation Objectives:
 - (a) Establish the physical integrity of the units;
 - (b) Establish whether there has been migration or continuing releases of hazardous wastes or constituents due to leaks from the units; and
 - (c) Establish the criterion to be used to determine if further investigation is required.
 - (2) Verification Investigation Work Plan Requirements:
 - (a) The plan shall comply with the format and all requirements set forth in Attachments A and C of this permit, in addition to the specific requirements set forth below. If the Permittee believes that certain requirements are not applicable, the specific requirement shall be identified and the rationale for inapplicability shall be provided in the Verification Investigation Work Plan.
 - (b) The plan shall include a detailed description of the method to be used to determine the physical integrity of the units. An industry-accepted method, subject to EPA approval, which meets the verification investigation objectives shall be used. Methods may include, but are not

limited to, volumetric analysis; in-line camera, etc.

(c) The plan shall include provisions for soil sampling to meet the verification investigation objectives. The soil sampling program shall include, at a minimum, the following:

- (i) Soil sampling shall be conducted in areas where the integrity has been impaired;
- (ii) The sampler shall record visual observations of the appearance of the soils over the entire depth of the boring; and
- (iii) Each boring shall be tested at completion for volatile emissions from soils using a flame ionization detector or a photo-ionization detector.

(d) The plan shall include a list of parameters to be analyzed in samples taken during the course of the verification investigation, including at a minimum the Skinner List of Constituents set forth in Attachment A.5.a.

b. Within 180 calendar days of receipt of approval by the Regional Administrator of the Verification Investigation Work Plan, the Permittee shall implement the plan and submit the results of the Verification Investigation to the Regional Administrator for approval and to the Director.

c. If the Regional Administrator determines that there is a need for additional verification investigation, the Regional Administrator shall notify the Permittee in writing of his determination, and the reasons therefore. The Permittee shall submit to the Regional Administrator for approval a plan to perform the additional investigations meeting the requirements and schedules provided in the plan within 90 calendar days of notification of such determination.

d. If the Regional Administrator determines that there is a need for a RFI based on the Verification Investigation results, the Regional Administrator shall notify the Permittee in writing of his

determination, and the reasons therefore. The Permittee shall submit a RFI Work Plan to the Regional Administrator for approval within 90 calendar days of notification of such determination. The RFI Work Plan shall meet the following objectives and requirements.

(1) RFI Work Plan Objectives:

- (a) Characterize the nature, extent, and rate of migration of releases to soil and groundwater from the area; and
- (b) Determine the criteria for and scope of corrective measures.

(2) RFI Work Plan Requirements:

- (a) The RFI Work Plan shall comply with the format and all requirements set forth in Attachments B and C of this permit, in addition to the specific requirements set forth below. ~~If the Permittee believes that certain requirements are not applicable, the specific requirement shall be identified and the rationale for inapplicability shall be provided in the RFI Work Plan;~~
 - (b) The plan shall include provisions for soil sampling as necessary to meet the RFI objectives. The plan shall fully describe the rationale for surface sampling locations, vertical sampling intervals and the criteria used to determine the deepest sample;
 - (c) The plan shall include provisions for groundwater monitoring as necessary to meet the RFI objectives. The monitoring plan shall include the rationale for the location of all wells both areally and vertically; and
 - (d) The plan shall include a list of parameters to be analyzed in samples taken during the course of the RFI, including at a minimum the Skinner List of constituents set forth in Attachment A5.a.
- e. Within 90 calendar days of receipt of approval by the Regional Administrator of the RFI Work Plan, the

Permittee shall complete all steps provided in the plan as prerequisites to RFI activities, including installation of monitoring wells, shall initiate RFI activities, and shall report its progress in completing these activities to the Regional Administrator and to the Director.

- f. Within 455 calendar days of receipt of approval by the Regional Administrator of the RFI Work Plan, the Permittee shall complete all steps in the plan and shall submit results of the RFI to the Regional Administrator and to the Director. Quarterly progress reports shall be submitted to the Regional Administrator and to the Director, beginning 180 calendar days after approval of the RFI Work Plan by the Regional Administrator and each 90 calendar days thereafter. Each quarterly progress report shall include, at a minimum, the results of all sampling and analysis activities conducted during the quarter.
- g. If the Regional Administrator determines that there is a need for continued monitoring under the approved RFI Work Plan, the Regional Administrator shall notify the Permittee in writing of his/her determination, and the reasons therefore. The Permittee shall continue monitoring activities in accordance with the plan and shall continue to submit quarterly progress reports to the Regional Administrator and to the Director. The first quarterly progress report shall be submitted within 90 calendar days of notification of the need for continued monitoring and each 90 days thereafter.
- h. If the Regional Administrator determines that there is a need for continued monitoring under a modified RFI Work Plan, the Regional Administrator shall notify the Permittee in writing of his/her determination, and the reasons therefore. The Permittee shall submit a modified RFI Work Plan to the Regional Administrator for approval within 30 calendar days of notification of the need for a modified plan. The Permittee shall continue to submit progress reports in accordance with an approved time interval to the Regional Administrator and to the Director.
- i. If the Regional Administrator determines that there is a need for corrective measures based on the results of the RFI, the Regional Administrator shall notify the Permittee in writing of his/her determination, and the reasons therefore. The Permittee shall submit to the Regional Administrator

for approval a work plan for a Corrective Measures Study within 90 calendar days of notification of such determination. The work plan shall comply with all the requirements set forth in Attachment E of this permit.

j. The Regional Administrator's determination for the necessity of a Corrective Measure Study shall be based on the following:

- (1) When the action levels found in Attachment F are exceeded by contaminant concentrations measured during the RFI; and
- (2) When the action levels developed by the Permittee are exceeded by contaminant concentrations measured during the RFI.

k. The Permittee shall develop action levels for those contaminants listed in Attachment A for which regulatory proposed action levels have not been developed. The action levels developed by the Permittee shall be submitted to the Regional Administrator and to the Director simultaneously with the submission of the RFI results required in Permit Condition II.A.2.f. The Permittee shall develop action levels based on:

(1) For ground water contaminant concentrations, action levels which meet the criteria specified below:

- (a) Maximum contaminant levels (MCLs) promulgated under the Safe Drinking Water Act, 42 U.S.C. §300 g-1 (40 CFR Part 141 Subpart B); or
- (b) For hazardous constituents for which MCLs have not been promulgated, a concentration which satisfies the following criteria, assuming exposure through consumption of the ground water contaminated with the hazardous constituent:

- (i) Is derived in a manner consistent with Agency guidelines for assessing the health risks of environmental pollutants which were published in the Federal Register on September 24, 1986 (51 FR 33992, 34006, 34014, 34028); and

- (ii) Is based on scientifically valid studies conducted in accordance with the Toxic Substances Control Act (TSCA), 15 U.S.C. §2603, Good Laboratory Practice Standards (40 CFR Part 792), or equivalent; and
 - (iii) For carcinogens, represents a concentration associated with an excess upper bound lifetime cancer risk of 1×10^{-6} due to continuous constant lifetime exposure, and considers the overall weight of evidence of carcinogenicity; and
 - (iv) For systemic toxicants, represents a concentration to which the human population (including sensitive subgroups) could be exposed on a daily basis that is likely to be without appreciable risk of deleterious effects during a lifetime.
- (2) For air contaminant concentrations, action levels which meet the criteria specified in Permit Condition II.A.2.k.(1)(b)(i)-(iv), assuming exposure through inhalation of the air contaminated with the hazardous constituent, as measured or calculated at the unit boundary.
- (3) For surface water contaminant concentrations, action levels which meet the criteria specified below:
- (a) Water Quality Standards established pursuant to Section 303(c) of the Clean Water Act, 33 U.S.C. §1251 et. seq. (40 CFR Part 131) by the Commonwealth of Pennsylvania, where such standards are expressed as numerical concentration limits; or
 - (b) MCLs promulgated under the Safe Drinking Water Act, 42 U.S.C. §300g-1, for hazardous constituents in surface waters designated by the Commonwealth of Pennsylvania for drinking water supply, where Water Quality Standards described in paragraph (a) above have not been established; or
 - (c) For hazardous constituents in surface waters designated by the Commonwealth of Pennsylvania for drinking water supply for

which Water Quality Standards described in paragraph (a) above or MCLs have not been established, a concentration which meets the criteria specified in Permit Condition II.A.2.k.(1)(b)(i)-(iv), assuming exposure through consumption of the water contaminated with the hazardous constituent; or

(d) For hazardous constituents in surface waters designated for a use or uses other than drinking water supply and for which water quality standards described in paragraph (a) above have not been established, a concentration established by the Permittee which meets the criteria specified in Permit Condition II.A.2.k.(1)(b)(i)-(iv), considering the use or uses of the receiving waters.

(4) For soils contaminant concentrations, action levels which meet the criteria specified in ~~Permit Condition II.A.2.k.(1)(b)(i)-(iv),~~ assuming exposure through consumption of the soil contaminated with the hazardous constituent.

1. If, for a contaminant constituent(s) detected in ground water in an aquifer, air, surface water or soils, a concentration level that meets the criteria of Permit Condition II.A.2.k.(1)-(4) is not submitted by the Permittee with the RFI results as required by Permit Condition II.A.2.k., the Regional Administrator may establish an action level for the hazardous constituent as:

(1) A level that is an indicator for protection of human health and the environment, using the exposure assumptions for the medium specified under Permit Condition II.A.2.k.(1)-(4); or

(2) The background concentration of the hazardous constituent.

m. Within 60 calendar days of receipt of approval by the Regional Administrator of the CMS Work Plan, the Permittee shall initiate the CMS and shall report its progress in completing the study by the tenth (10th) day of every month to the Regional Administrator and to the Director. The Permittee shall comply with all requirements set forth in Attachment E of this permit for reporting and completion of the CMS.

- n. When developing RFI and CMS workplans and Reports, the Permittee shall consider the most recent published RCRA guidance documents and shall consult with EPA to determine the appropriate sections of the guidance and regulations to be used.
 - o. In lieu of the work plan required in permit condition II.A.2.a. for the investigation of Tank 355 (SWMU 13), the Permittee may submit, for EPA approval, any work plans and reports of work in progress for corrective action at the unit.
3. Past Lagoon A (SWMU 11)
Crude Oil Topping Unit (SWMU 12)
Tank 200 Past Lagoon (SWMU 29)
Past Lagoon B (SWMU 71)
- a. Within 120 calendar days of the effective date of this permit, the Permittee shall submit to the Regional Administrator for approval and to the Director, a report which identifies and describes to the fullest extent possible the existence, use and waste management procedures at each of the above units, and a Verification Investigation Work Plan to take place at each unit.
 - (1) This report shall be based on facility records and interviews with present and past employees and shall provide, to the extent available, the following information for each of the above units:
 - (a) dimensions and locations;
 - (b) waste composition;
 - (c) approximate dates of use;
 - (d) release controls;
 - (e) history of releases; and
 - (f) waste management procedures.
 - (2) Verification Investigation Objectives:
 - (a) Establish the presence or absence of hazardous waste or hazardous waste constituents in the area of each unit;
 - (b) Establish whether there is or has been migration of hazardous waste or hazardous waste constituents from the units to the soil and/or groundwater; and
 - (c) Establish criteria to be used to determine if further investigation is required.

(3) Verification Investigation Plan Requirements:

- (a) The plan shall comply with the format and all applicable requirements set forth in Attachments A and C of this permit, in addition to the specific requirements set forth below. If the Permittee believes that certain requirements are not applicable, the specific requirements shall be identified and the rationale for inapplicability shall be provided in the Verification Investigation Work Plan.
- (b) The plan shall include provisions for soil sampling to be conducted as necessary to meet the Verification Investigation objectives. The soil sampling program shall include, at a minimum, the following:
 - (i) Subsurface soil sampling shall be conducted based on a grid system developed for the entire area (borings shall be at a depth necessary to address releases from the unit, dimensions shall be provided in the plan, and a minimum of four samples per grid should be collected);
 - (ii) The depth of the borings shall extend to the base of the units;
 - (iii) The sample shall record visual observations of the appearance of the soils over the entire depth of the boring; and
 - (iv) Each boring shall be tested at completion for volatile emissions from soils using a flame ionization detector or a photo-ionization detector.
- (c) The plan should include a soil gas survey to be conducted during soil sampling to determine whether gas from volatiles or biodegradation products is being generated.
- (d) The plan shall include at a minimum the Skinner List of constituents, set forth in Attachment A5.a, as the parameters to be analyzed in the samples.

- b. Within 180 calendar days of receipt of approval by the Regional Administrator of the Verification Investigation Work Plan, the Permittee shall implement the plan and submit the results of the Verification Investigation to the Regional Administrator for approval and to the Director.
- c. If the Regional Administrator determines that there is a need for additional verification investigation the Regional Administrator notify the Permittee in writing of his determination, and the reasons therefore. The Permittee shall submit to the Regional Administrator for approval a plan to perform the additional investigations meeting the requirements and schedules provided in the plan within 90 calendar days of notification of such determination.
- d. If the Regional Administrator determines that there is a need for a RFI based on the Verification Investigation results, the Regional Administrator shall notify the Permittee in writing of his determination, and the reasons therefore. The Permittee shall submit a RFI Work Plan to the Regional Administrator for approval within 90 calendar days of notification of such determination. The RFI Work Plan shall meet the following objectives and requirements.

(1) RFI Work Plan Objectives:

- (a) Characterize the nature, extent, and rate of migration of releases to soil and groundwater from the area; and
- (b) Determine the criteria for and scope of corrective measures.

(2) RFI Work Plan Requirements:

- (a) The RFI Work Plan shall comply with the format and all requirements set forth in Attachments B and C of this permit, in addition to the specific requirements set forth below. If the Permittee believes that certain requirements are not applicable, the specific requirement shall be identified and the rationale for inapplicability shall be provided in the RFI Work Plan;

- (b) The plan shall include provisions for soil sampling as necessary to meet the RFI objectives. The plan shall fully describe the rationale for surface sampling locations, vertical sampling intervals and the criteria used to determine the deepest sample;
 - (c) The plan shall include provisions for groundwater monitoring as necessary to meet the RFI objectives. The monitoring plan shall include the rationale for the location of all wells both areally and vertically; and
 - (d) The plan shall include a list of parameters to be analyzed in samples taken during the course of the RFI, including at a minimum the Skinner List of constituents set forth in Attachment A5.a.
- e. Within 90 calendar days of receipt of approval by the Regional Administrator of the RFI Work Plan, the Permittee shall complete all steps provided in the plan as prerequisites to RFI activities, including installation of monitoring wells, shall initiate RFI activities, and shall report its progress in completing these activities to the Regional Administrator and to the Director.
- f. Within 455 calendar days of receipt of approval by the Regional Administrator of the RFI Work Plan, the Permittee shall complete all steps in the plan and shall submit results of the RFI to the Regional Administrator and to the Director. Quarterly progress reports shall be submitted to the Regional Administrator and to the Director, beginning 180 calendar days after approval of the RFI Work Plan by the Regional Administrator and each 90 calendar days thereafter. Each quarterly progress report shall include, at a minimum, the results of all sampling and analysis activities conducted during the quarter.
- g. If the Regional Administrator determines that there is a need for continued monitoring under the approved RFI Work Plan, the Regional Administrator shall notify the Permittee in writing of his/her determination, and the reasons therefore. The Permittee shall continue monitoring activities in accordance with the plan and shall continue to submit quarterly progress reports to the Regional Administrator and to the Director. The first

quarterly progress report shall be submitted within 90 calendar days of notification of the need for continued monitoring and each 90 days thereafter.

- h. If the Regional Administrator determines that there is a need for continued monitoring under a modified RFI Work Plan the Regional Administrator shall notify the Permittee in writing of his/her determination, and the reasons therefore. The Permittee shall submit a modified RFI Work Plan to EPA for approval within 30 calendar days of notification of the need for a modified plan. The Permittee shall continue to submit progress reports in accordance with an approved time interval to the Regional Administrator and to the Director.
- i. If the Regional Administrator determines that there is a need for corrective measures based on the results of the RFI the Regional Administrator shall notify the Permittee in writing of his/her determination, and the reasons therefore. The Permittee shall submit to the Regional Administrator for approval a work plan for a Corrective Measures Study within 90 calendar days of notification of such determination. The work plan shall comply with all the requirements set forth in Attachment E of this permit.
- j. The Regional Administrator's determination for the necessity of a Corrective Measure Study shall be based on the following:
 - (1) When the action levels found in Attachment F are exceeded by contaminant concentrations measured during the RFI; and
 - (2) When the action levels developed by the Permittee are exceeded by contaminant concentrations measured during the RFI.
- k. The Permittee shall develop action levels for those contaminants listed in Attachment A for which regulatory proposed action levels have not been developed. The action levels developed by the Permittee shall be submitted to the Regional Administrator and to the Director simultaneously with the submission of the RFI results required in Permit Condition II.A.3.f. The Permittee shall develop action levels based on:

- (1) For ground water contaminant concentrations, action levels which meet the criteria specified below:
 - (a) Maximum contaminant levels (MCLs) promulgated under the Safe Drinking Water Act, 42 U.S.C. §300 g-1 (40 CFR Part 141 Subpart B); or
 - (b) For hazardous constituents for which MCLs have not been promulgated, a concentration which satisfies the following criteria, assuming exposure through consumption of the ground water contaminated with the hazardous constituent:
 - (i) Is derived in a manner consistent with Agency guidelines for assessing the health risks of environmental pollutants which were published in the Federal Register on September 24, 1986 (51 FR 33992, 34006, 34014, 34028); and
 - (ii) Is based on scientifically valid studies conducted in accordance with the Toxic Substances Control Act (TSCA), 15 U.S.C. §2603, Good Laboratory Practice Standards (40 CFR Part 792), or equivalent; and
 - (iii) For carcinogens, represents a concentration associated with an excess upper bound lifetime cancer risk of 1×10^{-6} due to continuous constant lifetime exposure, and considers the overall weight of evidence of carcinogenicity; and
 - (iv) For systemic toxicants, represents a concentration to which the human population (including sensitive subgroups) could be exposed on a daily basis that is likely to be without appreciable risk of deleterious effects during a lifetime.
- (2) For air contaminant concentrations, action levels which meet the criteria specified in Permit Condition II.A.3.k.(1)(b)(i)-(iv), assuming exposure through inhalation of the air

contaminated with the hazardous constituent, as measured or estimated at the unit boundary.

- (3) For surface water contaminant concentrations, action levels which meet the criteria specified below:
 - (a) Water Quality Standards established pursuant to Section 303(c) of the Clean Water Act, 33 U.S.C. §1251 et. seq. (40 CFR Part 131) by the Commonwealth of Pennsylvania, where such standards are expressed as numerical concentration limits; or
 - (b) MCLs promulgated under the Safe Drinking Water Act, 42 U.S.C. §300 g-1, for hazardous constituents in surface waters designated by the Commonwealth of Pennsylvania for drinking water supply, where Water Quality Standards described in paragraph (a) above have not been established; or
 - (c) For hazardous constituents in surface waters designated by the Commonwealth of Pennsylvania for drinking water supply for which Water Quality Standards described in paragraph (a) above or MCLs have not been established, a concentration which meets the criteria specified in Permit Condition II.A.3.k.(1)(b)(i)-(iv), assuming exposure through consumption of the water contaminated with the hazardous constituent; or
 - (d) For hazardous constituents in surface waters designated for a use or uses other than drinking water supply and for which water quality standards described in paragraph (a) above have not been established, a concentration established by the Permittee which meets the criteria specified in Permit Condition II.A.3.k(1)(b)(i)-(iv), considering the use or uses of the receiving waters.
- (4) For soils contaminant concentrations, action levels which meet the criteria specified in Permit Condition II.A.3.k.(1)(b)(i)-(iv), assuming exposure through consumption of the soil contaminated with the hazardous constituent.

1. If, for a contaminant constituent(s) detected in ground water in an aquifer, air, surface water or soils, a concentration level that meets the criteria of Permit Condition II.A.3.k.(1)-(4) is not submitted by the Permittee with the RFI results as required by Permit Condition II.A.3.k., the Regional Administrator may establish an action level for the hazardous constituent as:
 - (1) A level that is an indicator for protection of human health and the environment, using the exposure assumptions for the medium specified under Permit Condition II.A.3.k.(1)-(4); or
 - (2) The background concentration of the hazardous constituent.
 - m. Within 60 calendar days of receipt of approval by the Regional Administrator of the CMS Work Plan, the Permittee shall initiate the CMS and shall report its progress in completing the study by the tenth (10th) day of every month to the Regional Administrator and to the Director. The Permittee shall comply with all requirements set forth in Attachment E of this permit for reporting and completion of the CMS.
 - n. When developing RFI and CMS workplans and Reports, the Permittee shall consider the most recent published RCRA guidance documents and shall consult with EPA to determine the appropriate sections of the guidance and regulations to be used.
4. Tank 357 (SWMU 16)
Tank 358 (SWMU 17)
- a. Within 120 calendar days of the effective date of this permit, the Permittee will submit to the Regional Administrator for approval and to the Director, a Verification Investigation Work Plan to take place at the above units.
 - (1) Verification Investigation Objectives:
 - (a) Establish the presence or absence of hazardous waste or hazardous waste constituents in the area of each unit;
 - (b) Establish whether there is or has been migration of hazardous waste or hazardous waste constituents from the units to the soil and/or groundwater; and

- (c) Establish criteria to be used to determine if further investigation is required.

(2) Verification Investigation Plan Requirements:

- (a) The plan shall comply with the format and all applicable requirements set forth in Attachments A and C of this permit, in addition to the specific requirements set forth below. If the Permittee believes that certain requirements are not applicable, the specific requirements shall be identified and the rationale for inapplicability shall be provided in the Verification Investigation Work Plan.

- (b) The plan shall include provisions for soil sampling to be conducted as necessary to meet the verification investigation objectives. The soil sampling program shall include, at a minimum, the following:

- (i) A minimum of one surface sample should be collected from areas where staining is observed;

- (ii) A minimum of four soil subsurface samples should be taken from the perimeters of each unit (borings shall be at a depth necessary to address releases from the unit);

- (iii) The sampler shall record visual observations of the appearance of the solid over the entire depth of the boring; and

- (iv) Each boring shall be tested at completion for volatile emissions from soils using a flame ionization detector or a photo-ionization detector.

- (c) The plan shall include at a minimum Skinner List of constituents, set for the in Attachment A.5.a, as the parameters to be analyzed in the samples.

b. Within 180 calendar days of receipt of approval by the Regional Administrator of the Verification Investigation Work Plan, the Permittee shall implement the plan and submit the results of the

Verification Investigation to the Regional Administrator for approval and to the Director.

- c. If the Regional Administrator determines that there is a need for additional verification investigation, the Regional Administrator shall notify the Permittee in writing of his determination, and the reasons therefore. The Permittee shall submit to the Regional Administrator for approval a plan to perform the additional investigations meeting the requirements and schedules provided in the plan within 90 calendar days of notification of such determination.
- d. If the Regional Administrator determines that there is a need for a RFI based on the Verification Investigation results, the Regional Administrator shall notify the Permittee in writing of his determination, and the reasons therefore. The Permittee shall submit a RFI Work Plan to the Regional Administrator for approval within 90 calendar days of notification of such determination. The RFI Work Plan shall meet the following objectives and requirements.

(1) RFI Work Plan Objectives:

- (a) Characterize the nature, extent, and rate of migration of releases to soil and groundwater from the area; and
- (b) Determine the criteria for and scope of corrective measures.

(2) RFI Work Plan Requirements:

- (a) The RFI Work Plan shall comply with the format and all requirements set forth in Attachments B and C of this permit, in addition to the specific requirements set forth below. If the Permittee believes that certain requirements are not applicable, the specific requirement shall be identified and the rationale for inapplicability shall be provided in the RFI Work Plan;
- (b) The plan shall include provisions for soil sampling as necessary to meet the RFI objectives. The plan shall fully describe the rationale for surface sampling locations, vertical sampling intervals and

the criteria used to determine the deepest sample;

- (c) The plan shall include provisions for groundwater monitoring as necessary to meet the RFI objectives. The monitoring plan shall include the rationale for the location of all wells both areally and vertically; and
 - (d) The plan shall include a list of parameters to be analyzed in samples taken during the course of the RFI, including at a minimum the Skinner List of constituents set forth in Attachment A5.a.
- e. Within 90 calendar days of receipt of approval by the Regional Administrator of the RFI Work Plan, the Permittee shall complete all steps provided in the plan as prerequisites to RFI activities, including installation of monitoring wells, shall initiate RFI activities, and shall report its progress in completing these activities to the Regional Administrator and to the Director.
- f. Within 455 calendar days of receipt of approval by the Regional Administrator of the RFI Work Plan, the Permittee shall complete all steps in the plan and shall submit results of the RFI to the Regional Administrator and to the Director. Quarterly progress reports shall be submitted to the Regional Administrator and to the Director, beginning 180 calendar days after approval of the RFI Work Plan by the Regional Administrator and each 90 calendar days thereafter. Each quarterly progress report shall include, at a minimum, the results of all sampling and analysis activities conducted during the quarter.
- g. If the Regional Administrator determines that there is a need for continued monitoring under the approved RFI Work Plan, the Regional Administrator shall notify the Permittee in writing of his/her determination, and the reasons therefore. The Permittee shall continue monitoring activities in accordance with the plan and shall continue to submit quarterly progress reports to the Regional Administrator and to the Director. The first quarterly progress report shall be submitted within 90 calendar days of notification of the need for continued monitoring and each 90 days thereafter.

- h. If the Regional Administrator determines that there is a need for continued monitoring under a modified RFI Work Plan, the Regional Administrator shall notify the Permittee in writing of his/her determination, and the reasons therefore. The Permittee shall submit a modified RFI Work Plan to the Regional Administrator for approval within 30 calendar days of notification of the need for a modified plan. The Permittee shall continue to submit progress reports in accordance with an approved time interval to the Regional Administrator and to the Director.
- i. If the Regional Administrator determines that there is a need for corrective measures based on the results of the RFI, the Regional Administrator shall notify the Permittee in writing of his/her determination, and the reasons therefore. The Permittee shall submit to EPA for approval a work plan for a Corrective Measures Study within 90 calendar days of notification of such determination. The work plan shall comply with all the requirements set forth in Attachment E of this permit.
- j. The Regional Administrator's determination for the necessity of a Corrective Measure Study shall be based on the following:
 - (1) When the action levels found in Attachment F are exceeded by contaminant concentrations measured during the RFI; and
 - (2) When the action levels developed by the Permittee are exceeded by contaminant concentrations measured during the RFI.
- k. The Permittee shall develop action levels for those contaminants listed in Attachment A for which regulatory proposed action levels have not been developed. The action levels developed by the Permittee shall be submitted to the Regional Administrator and to the Director simultaneously with the submission of the RFI results required in Permit Condition II.A.4.f. The Permittee shall develop action levels based on:
 - (1) For ground water contaminant concentrations, action levels which meet the criteria specified below:
 - (a) Maximum contaminant levels (MCLs) promulgated under the Safe Drinking Water

Act, 42 U.S.C. §300 g-1 (40 CFR Part 141 Subpart B); or

- (b) For hazardous constituents for which MCLs have not been promulgated, a concentration which satisfies the following criteria, assuming exposure through consumption of the ground water contaminated with the hazardous constituent:
 - (i) Is derived in a manner consistent with Agency guidelines for assessing the health risks of environmental pollutants which were published in the Federal Register on September 24, 1986 (51 FR 33992, 34006, 34014, 34028); and
 - (ii) Is based on scientifically valid studies conducted in accordance with the Toxic Substances Control Act (TSCA), 15 U.S.C. §2603, Good Laboratory Practice Standards (40 CFR Part 792), or equivalent; and
 - (iii) For carcinogens, represents a concentration associated with an excess upper bound lifetime cancer risk of 1×10^{-6} due to continuous constant lifetime exposure, and considers the overall weight of evidence of carcinogenicity; and
 - (iv) For systemic toxicants, represents a concentration to which the human population (including sensitive subgroups) could be exposed on a daily basis that is likely to be without appreciable risk of deleterious effects during a lifetime.
- (2) For air contaminant concentrations, action levels which meet the criteria specified in Permit Condition II.A.4.k.(1)(b)(i)-(iv), assuming exposure through inhalation of the air contaminated with the hazardous constituent, as measured or calculated at the unit boundary.
- (3) For surface water contaminant concentrations, action levels which meet the criteria specified below:

- (a) Water Quality Standards established pursuant to Section 303(c) of the Clean Water Act, 33 U.S.C. §1251 et. seq. (40 CFR Part 131) by the Commonwealth of Pennsylvania, where such standards are expressed as numerical concentration limits; or
 - (b) MCLs promulgated under the Safe Drinking Water Act, 42 U.S.C. §300 g-1, for hazardous constituents in surface waters designated by the Commonwealth of Pennsylvania for drinking water supply, where Water Quality Standards described in paragraph (a) above have not been established; or
 - (c) For hazardous constituents in surface waters designated by the Commonwealth of Pennsylvania for drinking water supply for which Water Quality Standards described in paragraph (a) above or MCLs have not been established, a concentration which meets the criteria specified in Permit Condition II.A.4.k.(1)(b)(i)-(iv), assuming exposure through consumption of the water contaminated with the hazardous constituent; or
 - (d) For hazardous constituents in surface waters designated for a use or uses other than drinking water supply and for which water quality standards described in paragraph (a) above have not been established, a concentration established by the Permittee which meets the criteria specified in Permit Condition II.A.4.k.(1)(b)(i)-(iv), considering the use or uses of the receiving waters.
- (4) For soils contaminant concentrations, action levels which meet the criteria specified in Permit Condition II.A.4.k.(1)(b)(i)-(iv), assuming exposure through consumption of the soil contaminated with the hazardous constituent.
1. If, for a contaminant constituent(s) detected in ground water in an aquifer, air, surface water or soils, a concentration level that meets the criteria of Permit Condition II.A.4.k.(1)-(4) is not submitted by the Permittee with the RFI results as required by Permit Condition II.A.4.k., the Regional

Administrator may establish an action level for the hazardous constituent as:

- (1) A level that is an indicator for protection of human health and the environment, using the exposure assumptions for the medium specified under Permit Condition II.A.4.k.(1)-(4); or
- (2) The background concentration of the hazardous constituent.

- m. Within 60 calendar days of receipt of approval by the Regional Administrator of the CMS Work Plan, the Permittee shall initiate the CMS and shall report its progress in completing the study by the tenth (10th) day of every month to the Regional Administrator and to the Director. The Permittee shall comply with all requirements set forth in Attachment E of this permit for reporting and completion of the CMS.
- n. When developing RFI and CMS workplans and Reports, the Permittee shall consider the most recent published RCRA guidance documents and shall consult with EPA to determine the appropriate sections of the guidance and regulations to be used.

5. Process Wastewater Pipes (SWMU 63)
Process Lines and Sumps (SWMU 100)

- a. Within 120 calendar days of the effective date of this permit, the permittee will submit to the Regional Administrator for approval and to the Director a Verification Investigation Work Plan for the above units.
 - (1) Verification Investigation Objectives:
 - (a) Establish the location of the units;
 - (b) Establish the physical integrity of the units;
 - (c) Establish whether there has been migration or continuing releases of hazardous wastes or constituents due to leaks from the units; and
 - (d) Establish the criterion to be used to determine if further investigation is required.

(2) Verification Investigation Work Plan
Requirements:

- (a) The plan shall comply with the format and all requirements set forth in Attachments A and C of this permit, in addition to the specific requirements set forth below. If the Permittee believes that certain requirements are not applicable, the specific requirements are not applicable, the specific requirement shall be identified and the rationale for inapplicability shall be provided in the Verification Investigation Work Plan.
- (b) The plan shall include a map delineating the above-ground, in-ground and below-ground locations of the units.
- (c) The plan shall include a detailed description of the method to be used to determine the integrity of the units. Use an industry-accepted method to meet the verification investigation objectives. Methods may include, but are not limited to, volumetric analysis; in-line camera, pressure test, etc.
- (d) The plan shall include provisions for soil sampling to meet the verification investigation objectives. The soil sampling program shall include the following:
 - (i) Soil sampling shall be conducted in areas where the integrity has been impaired;
 - (ii) The sampler shall record visual observations of the appearance of the soil over the entire depth of the boring; and
 - (iii) Each boring shall be tested at completion for volatile emissions from soils using a flame ionization detector or a photo-ionization detector.
- (e) The plan shall include a list of parameters to be analyzed in samples taken during the course of the verification investigation,

including at a minimum the Skinner List of Constituents set forth in Attachment A.5.a.

- b. Within 180 calendar days of receipt of approval by the Regional Administrator of the Verification Investigation Work Plan, the Permittee shall implement the plan and submit the results of the Verification Investigation to the Regional Administrator for approval and to the Director.
- c. If the Regional Administrator determines that there is a need for additional verification investigation, the Regional Administrator shall notify the Permittee in writing of his determination, and the reasons therefore. The Permittee shall submit to the Regional Administrator for approval a plan to perform the additional investigations meeting the requirements and schedules provided in the plan within 90 calendar days of notification of such determination.
- d. If the Regional Administrator determines that there is a need for a RFI based on the Verification Investigation results, the Regional Administrator shall notify the Permittee in writing of his determination, and the reasons therefore. The Permittee shall submit a RFI Work Plan to the Regional Administrator for approval within 90 calendar days of notification of such determination. The RFI Work Plan shall meet the following objectives and requirements.

(1) RFI Work Plan Objectives:

- (a) Characterize the nature, extent, and rate of migration of releases to soil and groundwater from the area; and
- (b) Determine the criteria for and scope of corrective measures.

(2) RFI Work Plan Requirements:

- (a) The RFI Work Plan shall comply with the format and all requirements set forth in Attachments B and C of this permit, in addition to the specific requirements set forth below. If the Permittee believes that certain requirements are not applicable, the specific requirement shall be identified and the rationale for inapplicability shall be provided in the RFI Work Plan;

- (b) The plan shall include provisions for soil sampling as necessary to meet the RFI objectives. The plan shall fully describe the rationale for surface sampling locations, vertical sampling intervals and the criteria used to determine the deepest sample;
 - (c) The plan shall include provisions for groundwater monitoring as necessary to meet the RFI objectives. The monitoring plan shall include the rationale for the location of all wells both areally and vertically; and
 - (d) The plan shall include a list of parameters to be analyzed in samples taken during the course of the RFI, including at a minimum the Skinner List of constituents set forth in Attachment A5.a.
- e. Within 90 calendar days of receipt of approval by the ~~Regional Administrator of the RFI Work Plan~~, the Permittee shall complete all steps provided in the plan as prerequisites to RFI activities, including installation of monitoring wells, shall initiate RFI activities, and shall report its progress in completing these activities to the Regional Administrator and to the Director.
- f. Within 455 calendar days of receipt of approval by the Regional Administrator of the RFI Work Plan, the Permittee shall complete all steps in the plan and shall submit results of the RFI to the Regional Administrator and to the Director. Quarterly progress reports shall be submitted to the Regional Administrator and to the Director, beginning 180 calendar days after approval of the RFI Work Plan by the Regional Administrator and each 90 calendar days thereafter. Each quarterly progress report shall include, at a minimum, the results of all sampling and analysis activities conducted during the quarter.
- g. If the Regional Administrator determines that there is a need for continued monitoring under the approved RFI Work Plan, the Regional Administrator shall notify the Permittee in writing of his/her determination, and the reasons therefore. The Permittee shall continue monitoring activities in accordance with the plan and shall continue to submit quarterly progress reports to the Regional Administrator and to the Director. The first

quarterly progress report shall be submitted within 90 calendar days of notification of the need for continued monitoring and each 90 days thereafter.

- h. If the Regional Administrator determines that there is a need for continued monitoring under a modified RFI Work Plan, the Regional Administrator shall notify the Permittee in writing of his/her determination, and the reasons therefore. The Permittee shall submit a modified RFI Work Plan to the Regional Administrator for approval within 30 calendar days of notification of the need for a modified plan. The Permittee shall continue to submit progress reports in accordance with an approved time interval to the Regional Administrator and to the Director.
- i. If the Regional Administrator determines that there is a need for corrective measures based on the results of the RFI, the Regional Administrator shall notify the Permittee in writing of his/her determination, and the reasons therefore. The Permittee shall submit to EPA for approval a work plan for a Corrective Measures Study within 90 calendar days of notification of such determination. The work plan shall comply with all the requirements set forth in Attachment E of this permit.
- j. The Regional Administrator's determination for the necessity of a Corrective Measure Study shall be based on the following:
 - (1) When the action levels found in Attachment F are exceeded by contaminant concentrations measured during the RFI; and
 - (2) When the action levels developed by the Permittee are exceeded by contaminant concentrations measured during the RFI.
- k. The Permittee shall develop action levels for those contaminants listed in Attachment A for which regulatory proposed action levels have not been developed. The action levels developed by the Permittee shall be submitted to the Regional Administrator and to the Director simultaneously with the submission of the RFI results required in Permit Condition II.A.5.f. The Permittee shall develop action levels based on:

- (1) For ground water contaminant concentrations, action levels which meet the criteria specified below:
 - (a) Maximum contaminant levels (MCLs) promulgated under the Safe Drinking Water Act, 42 U.S.C. §300g-1 (40 CFR Part 141 Subpart B); or
 - (b) For hazardous constituents for which MCLs have not been promulgated, a concentration which satisfies the following criteria, assuming exposure through consumption of the ground water contaminated with the hazardous constituent:
 - (i) Is derived in a manner consistent with Agency guidelines for assessing the health risks of environmental pollutants which were published in the Federal Register on September 24, 1986 (51 FR 33992, 34006, 34014, 34028); and
 - (ii) Is based on scientifically valid studies conducted in accordance with the Toxic Substances Control Act (TSCA), 15 U.S.C. §2603, Good Laboratory Practice Standards (40 CFR Part 792), or equivalent; and
 - (iii) For carcinogens, represents a concentration associated with an excess upper bound lifetime cancer risk of 1×10^{-6} due to continuous constant lifetime exposure, and considers the overall weight of evidence of carcinogenicity; and
 - (iv) For systemic toxicants, represents a concentration to which the human population (including sensitive subgroups) could be exposed on a daily basis that is likely to be without appreciable risk of deleterious effects during a lifetime.
- (2) For air contaminant concentrations, action levels which meet the criteria specified in Permit Condition II.A.5.k.(1)(b)(i)-(iv), assuming exposure through inhalation of the air contaminated with the hazardous constituent, as measured or calculated at the unit boundary.

- (3) For surface water contaminant concentrations, action levels which meet the criteria specified below:
- (a) Water Quality Standards established pursuant to Section 303(c) of the Clean Water Act, 33 U.S.C. §1251 et. seq. (40 CFR Part 131) by the Commonwealth of Pennsylvania, where such standards are expressed as numerical concentration limits; or
 - (b) MCLs promulgated under the Safe Drinking Water Act, 42 U.S.C. §300g-1 for hazardous constituents in surface waters designated by the Commonwealth of Pennsylvania for drinking water supply, where Water Quality Standards described in paragraph (a) above have not been established; or
 - (c) For hazardous constituents in surface waters designated by the Commonwealth of Pennsylvania for drinking water supply for which ~~Water Quality Standards~~ described in paragraph (a) above or MCLs have not been established, a concentration which meets the criteria specified in Permit Condition II.A.5.k.(1)(b)(i)-(iv), assuming exposure through consumption of the water contaminated with the hazardous constituent; or
 - (d) For hazardous constituents in surface waters designated for a use or uses other than drinking water supply and for which water quality standards described in paragraph (a) above have not been established, a concentration established by the Permittee which meets the criteria specified in Permit Condition II.A.5.k(1)(b)(i)-(iv), considering the use or uses of the receiving waters.
- (4) For soils contaminant concentrations, action levels which meet the criteria specified in Permit Condition II.A.5.k.(1)(b)(i)-(iv), assuming exposure through consumption of the soil contaminated with the hazardous constituent.
1. If, for a contaminant constituent(s) detected in ground water in an aquifer, air, surface water or soils, a concentration level that meets the criteria

of Permit Condition II.A.5.k.(1)-(4) is not submitted by the Permittee with the RFI results as required by Permit Condition II.A.5.k., the Regional Administrator may establish an action level for the hazardous constituent as:

(1) A level that is an indicator for protection of human health and the environment, using the exposure assumptions for the medium specified under Permit Condition II.A.5.k.(1)-(4); or

(2) The background concentration of the hazardous constituent.

m. Within 60 calendar days of receipt of approval by the Regional Administrator of the CMS Work Plan, the Permittee shall initiate the CMS and shall report its progress in completing the study by the tenth (10th) day of every month to the Regional Administrator and to the Director. The Permittee shall comply with all

requirements set forth in Attachment E of this permit for reporting and completion of the CMS.

n. When developing RFI and CMS workplans and Reports, the Permittee shall consider the most recent published RCRA guidance documents and shall consult with EPA to determine the appropriate sections of the guidance and regulations to be used.

6. Petrochemical Loading Area (SWMU 81)
Lube Oil Unloading Area (SWMU 82)
Agent Unloading Area (SWMU 83)
WEMCO Unloading Area (SWMU 84)
Oldest Loading Area (SWMU 85)
Spent Caustic Loading Area (SWMU 86)

a. Within 120 calendar days of the effective date of this permit, the Permittee shall submit to the Regional Administrator for approval and to the Director, a report which identifies and describes to the fullest extent the location of all loading and unloading areas at the facility and a Verification Investigation Work Plan to take place at the above units and the units identified in the report.

(1) This report shall be based on facility records and shall identify all loading and unloading areas and shall provide, to the extent available, the following information for each of the loading and unloading areas:

- (a) dimensions and locations within the facility;
 - (b) approximate dates of use;
 - (c) identification of material loaded and unloaded;
 - (d) release controls; and
 - (e) history of releases.
- (2) Verification Investigation Objectives:
- (a) Establish the presence or absence of hazardous waste constituents in the area of each unit;
 - (b) Establish whether there is or has been migration of hazardous waste or hazardous waste constituents from the units to the soil and/or groundwater; and
 - (c) Establish criteria to be used to determine if further investigation is required.
- (3) Verification Investigation Work Plan Requirements:
- (a) The plan shall comply with the format and all requirements set forth in Attachments A and C of this permit, in addition to the specific requirements set forth below. If the Permittee believes that certain requirements are not applicable, the specific requirements are not applicable, the specific requirement shall be identified and the rationale for inapplicability shall be provided in the Verification Investigation Work Plan.
 - (b) The plan shall include provisions for soil sampling to meet the Verification Investigation objectives. The soil sampling program shall include the following:
 - (i) A minimum of one-surface sample shall be collected at each SWMU listed in Permit Condition II.A.6. from areas where staining was observed during the EPA's Visual Site Inspection on November 17 and 18, 1988;

- (ii) Sampling shall be conducted based on a grid system developed for the entire area (borings shall be at a depth necessary to address releases from the unit, justification of the grid system dimensions shall be provided in the plan);
 - (iii) The sampler shall record visual observations of the appearance of the soil over the entire depth of the boring; and
 - (iv) Each boring shall be scanned at completion for volatile emissions from soils using a flame ionization detector or a photo-ionization detector.
- (c) The plan shall include a list of parameters to be analyzed in samples taken during the course of the Verification Investigation, including at a minimum the Skinner List of ~~Constituents set forth in Attachment A.5.a.~~
- b. Within 180 calendar days of receipt of approval by the Regional Administrator of the Verification Investigation Work Plan, the Permittee shall implement the plan and submit the results of the Verification Investigation to the Regional Administrator for approval and to the Director.
- c. If the Regional Administrator determines that there is a need for additional Verification Investigation, the Regional Administrator shall notify the Permittee in writing of his determination, and the reasons therefore. The Permittee shall submit to the Regional Administrator for approval a plan to perform the additional investigations meeting the requirements and schedules provided in the plan within 90 calendar days of notification of such determination.
- d. If the Regional Administrator determines that there is a need for a RFI based on the Verification Investigation results, the Regional Administrator shall notify the Permittee in writing of his determination, and the reasons therefore. The Permittee shall submit a RFI Work Plan to the Regional Administrator for approval within 90 calendar days of notification of such determination. The RFI Work Plan shall meet the following objectives and requirements.

(1) RFI Work Plan Objectives:

- (a) Characterize the nature, extent, and rate of migration of releases to soil and groundwater from the area; and
- (b) Determine the criteria for and scope of corrective measures.

(2) RFI Work Plan Requirements:

- (a) The RFI Work Plan shall comply with the format and all requirements set forth in Attachments B and C of this permit, in addition to the specific requirements set forth below. If the Permittee believes that certain requirements are not applicable, the specific requirement shall be identified and the rationale for inapplicability shall be provided in the RFI Work Plan;
 - (b) The plan shall include provisions for soil ~~sampling as necessary to meet the RFI~~ objectives. The plan shall fully describe the rationale for surface sampling locations, vertical sampling intervals and the criteria used to determine the deepest sample;
 - (c) The plan shall include provisions for groundwater monitoring as necessary to meet the RFI objectives. The monitoring plan shall include the rationale for the location of all wells both areally and vertically; and
 - (d) The plan shall include a list of parameters to be analyzed in samples taken during the course of the RFI, including at a minimum the Skinner List of constituents set forth in Attachment A5.a.
- e. Within 90 calendar days of receipt of approval by the Regional Administrator of the RFI Work Plan, the Permittee shall complete all steps provided in the plan as prerequisites to RFI activities, including installation of monitors, shall initiate RFI activities, and shall report its progress in completing these activities to the Regional Administrator and to the Director.

- f. Within 455 calendar days of receipt of approval by the Regional Administrator of the RFI Work Plan, the Permittee shall complete all steps in the plan and shall submit results of the RFI to the Regional Administrator and to the Director. Quarterly progress reports shall be submitted to the Regional Administrator and to the Director, beginning 180 calendar days after approval of the RFI Work Plan by the Regional Administrator and each 90 calendar days thereafter. Each quarterly progress report shall include, at a minimum, the results of all sampling and analysis activities conducted during the quarter.
- g. If the Regional Administrator determines that there is a need for continued monitoring under the approved RFI Work Plan, the Regional Administrator shall notify the Permittee in writing of his/her determination, and the reasons therefore. The Permittee shall continue monitoring activities in accordance with the plan and shall continue to submit quarterly progress reports to the Regional Administrator and to the Director. The first quarterly progress report shall be submitted within 90 calendar days of notification of the need for continued monitoring and each 90 days thereafter.
- h. If the Regional Administrator determines that there is a need for continued monitoring under a modified RFI Work Plan, the Regional Administrator shall notify the Permittee in writing of his/her determination, and the reasons therefore. The Permittee shall submit a modified RFI Work Plan to the Regional Administrator for approval within 30 calendar days of notification of the need for a modified plan. The Permittee shall continue to submit progress reports in accordance with an approved time interval to the Regional Administrator and to the Director.
- i. If the Regional Administrator determines that there is a need for corrective measures based on the results of the RFI, the Regional Administrator shall notify the Permittee in writing of his/her determination, and the reasons therefore. The Permittee shall submit to the Regional Administrator for approval a work plan for a Corrective Measures Study within 90 calendar days of notification of such determination. The work plan shall comply with all the requirements set forth in Attachment E of this permit.

- j. The Regional Administrator's determination for the necessity of a Corrective Measure Study shall be based on the following:
- (1) When the action levels found in Attachment F are exceeded by contaminant concentrations measured during the RFI; and
 - (2) When the action levels developed by the Permittee are exceeded by contaminant concentrations measured during the RFI.
- k. The Permittee shall develop action levels for those contaminants listed in Attachment A for which regulatory proposed action levels have not been developed. The action levels developed by the Permittee shall be submitted to the Regional Administrator and to the Director simultaneously with the submission of the RFI results required in Permit Condition II.A.6.f. The Permittee shall develop action levels based on:
- (1) For ground water contaminant concentrations, action levels which meet the criteria specified below:
 - (a) Maximum contaminant levels (MCLs) promulgated under the Safe Drinking Water Act, 42 U.S.C. §300 g-1 (40 CFR Part 141 Subpart B); or
 - (b) For hazardous constituents for which MCLs have not been promulgated, a concentration which satisfies the following criteria, assuming exposure through consumption of the water contaminated with the hazardous constituent:
 - (i) Is derived in a manner consistent with Agency guidelines for assessing the health risks of environmental pollutants which were published in the Federal Register on September 24, 1986 (51 FR 33992, 34006, 34014, 34028); and
 - (ii) Is based on scientifically valid studies conducted in accordance with the Toxic Substances Control Act (TSCA), 15 U.S.C. §2603, Good Laboratory Practice Standards (40 CFR Part 792), or equivalent; and

- (iii) For carcinogens, represents a concentration associated with an excess upper bound lifetime cancer risk of 1×10^{-6} due to continuous constant lifetime exposure, and considers the overall weight of evidence of carcinogenicity; and
 - (iv) For systemic toxicants, represents a concentration to which the human population (including sensitive subgroups) could be exposed on a daily basis that is likely to be without appreciable risk of deleterious effects during a lifetime.
- (2) For air contaminant concentrations, action levels which meet the criteria specified in Permit Condition II.A.6.k.(1)(b)(i)-(iv), assuming exposure through inhalation of the air contaminated with the hazardous constituent, as measured or calculated at the unit boundary.
- ~~(3) For surface water contaminant concentrations,~~
action levels which meet the criteria specified below:
- (a) Water Quality Standards established pursuant to Section 303(c) of the Clean Water Act, 33 U.S.C. § 1251 et. seq. (40 CFR Part 131) by the Commonwealth of Pennsylvania, where such standards are expressed as numerical concentration limits; or
 - (b) MCLs promulgated under the Safe Drinking Water Act, 42 U.S.C. § 300 g-1 for hazardous constituents in surface waters designated by the Commonwealth of Pennsylvania for drinking water supply, where Water Quality Standards described in paragraph (a) above have not been established; or
 - (c) For hazardous constituents in surface waters designated by the Commonwealth of Pennsylvania for drinking water supply for which Water Quality Standards described in paragraph (a) above or MCLs have not been established, a concentration which meets the criteria specified in Permit Condition II.A.6.k.(1)(b)(i)-(iv), assuming exposure through consumption of the water contaminated with the hazardous constituent; or

- (d) For hazardous constituents in surface waters designated for a use or uses other than drinking water supply and for which water quality standards described in paragraph (a) above have not been established, a concentration established by the Permittee which meets the criteria specified in Permit Condition II.A.6.k(1)(b)(i)-(iv), considering the use or uses of the receiving waters.
- (4) For soils contaminant concentrations, action levels which meet the criteria specified in Permit Condition II.A.6.k.(1)(b)(i)-(iv), assuming exposure through consumption of the soil contaminated with the hazardous constituent.
- 1. If, for a contaminant constituent(s) detected in ground water in an aquifer, air, surface water or soils, a concentration level that meets the criteria of Permit Condition II.A.6.k.(1)-(4) is not submitted by the Permittee with the RFI results as required by Permit Condition II.A.6.k., the Regional Administrator may establish an action level for the hazardous constituent as:
 - (1) A level that is an indicator for protection of human health and the environment, using the exposure assumptions for the medium specified under Permit Condition II.A.6.k.(1)-(4); or
 - (2) The background concentration of the hazardous constituent.
- m. Within 60 calendar days of receipt of approval by the Regional Administrator of the CMS Work Plan, the Permittee shall initiate the CMS and shall report its progress in completing the study by the tenth (10) day of every month to the Regional Administrator and to the Director. The Permittee shall comply with all requirements set forth in Attachment E of this permit for reporting and completion of the CMS.
- n. When developing RFI and CMS workplans and Reports, the Permittee shall consider the most recent published RCRA guidance documents and shall consult with EPA to determine the appropriate sections of the guidance and regulations to be used.
- 7. Buried Lead Sludge Area 1 (SWMU 87)
Buried Lead Sludge Area 2 (SWMU 88)

Buried Lead Sludge Area 3 (SWMU 89)
Buried Lead Sludge Area 4 (SWMU 90)
Buried Lead Sludge Area 5 (SWMU 91)
Buried Lead Sludge Area 6 (SWMU 92)
Buried Lead Sludge Area 7 (SWMU 93)
Buried Lead Sludge Area 8 (SWMU 94)
Buried Lead Sludge Area 9 (SWMU 95)
Area A Ballfield (SWMU 96)
Area B Ballfield (SWMU 97)
Bulkhead Seepage Area (SWMU 101)

- a. Within 180 calendar days of the effective date of this permit, the Permittee shall submit to the Regional Administrator and to the Director a work plan for a RCRA Facility Investigation (RFI) to take place at this facility which incorporates all areas exhibiting contamination of soil and/or groundwater.

(1) RFI Objectives:

- (a) Characterize the nature, extent, and rate of migration of documented releases of hazardous constituents to soil and groundwater at this facility;
- (b) Develop a detailed characterization of the geology and hydrogeology underlying the facility; and
- (c) Determine the criteria for and scope of corrective measures.

(2) RFI Work Plan Requirements:

- (a) The work plan shall demonstrate that all applicable requirements set forth in Attachment B of this permit, in addition to the specific requirements set forth below, as necessary to meet the RFI objectives, are met. If the Permittee believes that certain requirements are not applicable, the specific requirements shall be provided in the work plan;
- (b) The work plan shall include provisions for soil sampling, groundwater monitoring, and soil gas monitoring surveys to take place as necessary to meet the RFI objectives;

- (c) The soil sampling shall be sufficient to characterize the extent of soil contamination at each of the units;
 - (d) The ground water monitoring shall be sufficient to characterize the extent of ground water contamination from each area. The plan shall delineate areas of the facility to be addressed as ground water study units and provide the justification for such delineation. Existing wells may be used, as long as all requirements set forth in this permit are met, although additional wells are required. Justification that the entire monitoring well system is adequate to characterize releases from each unit shall be provided in the plan;
 - (e) The sampling plan shall include provisions for quarterly analysis of indicator parameters in order to detect groundwater migration of contaminants. The indicator parameters chosen, justified and approved prior to these analyses; and
 - (f) The work plan shall include, at a minimum, the Skinner List of constituents set forth in Attachment A.5.a, as parameters to be analyzed in the samples from Buried Lead Sludge Areas 1-9 (SWMUs 87-95) and Bulkhead Seepage Area (SWMU 101). The work plan shall include, at a minimum, the metals, volatiles, and semi-volatiles listed in 40 CFR 264, Appendix IX (see Attachment A.5.b) for samples from Area A Ballfield (SWMU 96) and Area B Ballfield (SWMU 97).
- b. Within 90 calendar days of approval by the Regional Administrator of the RFI Work Plan, the Permittee shall complete all steps provided in the plan as prerequisites to RFI activities, including installation of monitoring wells, shall initiate RFI activities, and shall report completion of these steps and initiation of RFI activities to the Regional Administrator and to the Director.
 - c. Within 515 calendar days of approval by the Regional Administrator of the RFI Work Plan, the Permittee shall complete all steps in the plan and shall submit results of the RFI to the Regional Administrator and to the Director. Quarterly progress reports shall be submitted to the Regional Administrator and to the

Director beginning 240 calendar days after approval of the RFI Work Plan by the Regional Administrator and within 150 calendar days thereafter. Each quarterly progress report shall include, at a minimum, the results of all sampling and analysis activities conducted during the quarter.

- d. If the Regional Administrator determines there is a need for continued monitoring under the approved RFI Work Plan, the Regional Administrator shall so notify the Permittee in writing of his/her determination, and the reasons therefore. The Permittee shall continue monitoring activities in accordance with the plan and shall continue to submit quarterly progress reports to the Regional Administrator and to the Director. The first quarterly progress report shall be submitted within 150 calendar days of notification of the need for continued monitoring.
- e. If the Regional Administrator determines that there is a need for corrective measures based on the ~~results of the RFI~~ the Regional Administrator shall notify the Permittee in writing of his determination, and the reasons therefore. The Permittee shall submit to EPA for approval a work plan for a Corrective Measures Study within 90 calendar days of notification of such determination. The work plan shall comply with all the requirements set forth in Attachment E of this permit.
- f. The Regional Administrators determination for the necessity of a Corrective Measure Study shall be based on the following:
 - (1) When the Action levels found in Attachment F are exceeded by contaminants concentrations measured during the RFI; and
 - (2) When the Action levels developed by the Permittee are exceeded by contaminant concentrations measured during the RFI.
- g. The Permittee shall develop action levels for those contaminants listed in Attachment A for which regulatory proposed action levels have not been developed. The action levels developed by the Permittee shall be submitted to the Regional Administrator and to the Director simultaneously with the submission of the RFI results required in Permit Condition II.A.7.c. The Permittee shall develop action levels based on:

(1) For ground water contaminant concentrations, action levels which meet the criteria specified below:

(a) Maximum contaminant levels (MCLs) promulgated under the Safe Drinking Water Act, 42 U.S.C. §300 g-1 (40 CFR Part 141 Subpart B); or

(b) For hazardous constituents for which MCLs have not been promulgated, a concentration which satisfies the following criteria, assuming exposure through consumption of the ground water contaminated with the hazardous constituent:

(i) Is derived in a manner consistent with Agency guidelines for assessing the health risks of environmental pollutants which were published in the Federal Register on September 24, 1986 (51 FR 33992, 34006, 34014, 34028); and

(ii) Is based on scientifically valid studies conducted in accordance with the Toxic Substances Control Act (TSCA), 15 U.S.C. §2603, Good Laboratory Practice Standards (40 CFR Part 792), or equivalent; and

(iii) For carcinogens, represents a concentration associated with an excess upper bound lifetime cancer risk of 1×10^{-6} due to continuous constant lifetime exposure, and considers the overall weight of evidence for carcinogenicity; and

(iv) For systemic toxicants, represents a concentration to which the human population (including sensitive subgroups) could be exposed on a daily basis that is likely to be without appreciable risk of deleterious effects during a lifetime.

(2) For air contaminant concentrations, action levels which meet the criteria specified in Permit condition II.A.7.g.(1)(b)(i)-(iv), assuming exposure through inhalation of the air

contaminated with the hazardous constituent, as measured or calculated at the unit boundary.

(3) For surface water contaminant concentrations, action levels which meet the criteria specified below:

(a) Water Quality Standards established pursuant to Section 303(c) of the Clean Water Act, 33 U.S.C. §1251 et. seq. (40 CFR Part 131) by the Commonwealth of Pennsylvania, where such standards are expressed as numerical concentration limits; or

(b) MCLs promulgated under the Safe Drinking Water Act, 42 U.S.C. §300 g-1 for hazardous constituents in surface waters designated by the Commonwealth of Pennsylvania for drinking water supply, where Water Quality Standards described in paragraph (a) above have not been established; or

~~(c) For hazardous constituents in surface waters designated by the Commonwealth of Pennsylvania for drinking water supply for which Water Quality Standards described in paragraph (a) above or MCLs have not been established, a concentration which meets the criteria specified in Permit Condition II.A.7.g.(1)(b)(i)-(iv), assuming exposure through consumption of the water contaminated with the hazardous constituent; or~~

(d) For hazardous constituents in surface waters designated for a use or uses other than drinking water supply and for which Water Quality Standards described in paragraph (a) above have not been established, a concentration established by the Permittee which meets the criteria specified in Permit Condition II.A.7.g.(1)(b)(i)-(iv), considering the use or uses of the receiving waters.

(4) For soils contaminant concentrations, action levels which meet the criteria specified in Permit Condition II.A.7.g.(1)(b)(i)-(iv), assuming exposure through consumption of the soil contaminated with the hazardous constituent.

h. If, for a contaminant constituent(s) detected in ground water in an aquifer, air, surface water or soils, a concentration level that meets the criteria of Permit Condition II.A.7.g.(1)-(4) is not submitted by the Permittee with the RFI results as required by Permit Condition II.A.7.g., the Regional Administrator may establish an action level for the hazardous constituent as:

- (1) A level that is an indicator for protection of human health and the environment, using the exposure assumptions for the medium specified under Permit condition II.A.7.g.(1)-(4); or
- (2) The background concentration of the hazardous constituent.

i. Within 60 calendar days of receipt of approval by the Regional Administrator of the CMS Work Plan, the Permittee shall initiate the CMS and shall report its progress in completing the study by the tenth (10th) day of every month to the Regional Administrator and to the Director. The Permittee shall comply with all requirements set forth in Attachment E of this permit for reporting and completion of the CMS.

j. When developing RFI and CMS workplans and Reports, the Permittee shall consider the most recent published RCRA guidance documents and shall consult with EPA to determine the appropriate sections of the guidance and regulations to be used.

8. Old Bundle Cleaning Area (SWMU 73)

The Permittee shall submit to EPA copies of submittals sent to PA DER, i.e., work plans, reports, analysis, conclusions, regarding any investigation and/or corrective action to be performed at the unit, pursuant to the August 22, 1989 work plan submitted by the Permittee to PA DER (in response to the September 28, 1988 Notice of Violation issued by PA DER),

9. Release Response Procedures

a. In the event of a release of hazardous waste constituents from any solid waste management unit, the Permittee shall proceed in full accordance with Commonwealth of Pennsylvania Permit No. PAD 049 791 098 regarding emergency procedures and proper notification requirements.

- b. In the event of a release of hazardous waste or hazardous waste constituents attributable to tank shell failure or a deficiency in tank shell thickness, the Permittee shall immediately implement the requirements of Permit Condition II.A.8.a. and
 - (1) implement the Tank Evaluation and Repair plan required by Commonwealth of Pennsylvania Permit No. PAD 049 791 098, including non-destructive testing, tank certification, and recordkeeping; or
 - (2) close the unit in full compliance with applicable State and Federal regulations.

10. Corrective Action

- a. Upon the determination by EPA Region III either by visual or soil sampling or by groundwater monitoring data changes (Part II B.2.a.1.(c)) that corrective action is needed for prior or continuing releases from solid waste management units, the requirements of 40 CFR 264.100(e) and 264.101 shall be met.
- b. In the event that corrective action is required, the Permittee shall maintain in conjunction with the corrective action program, groundwater monitoring wells for the purpose of determining the effectiveness and progress of the corrective action system as required under 40 CFR §264.100(d).

B. SUBMISSIONS TO AGENCY AND DISPUTE RESOLUTION

1. The Permittee shall submit at least three copies to EPA of any submittal required by this permit. All submittals shall be signed and certified pursuant to 40 CFR §§270.30(k).
2. All plans, reports, and schedules required by the terms of this permit are, upon approval by EPA, incorporated into this permit. Any noncompliance with such approved plans, reports, or schedules shall be deemed noncompliance with this permit. In the event of unforeseen circumstances, the Permittee may request a change, subject to EPA approval, in the previously approved plans, reports or schedules. This request may result in a major or minor modification of the permit.
3. In the event of Agency disapproval in whole or in part of any plan or report required by this permit, EPA shall specify any deficiencies in writing. The Permittee shall modify the plan or report to correct the deficiencies within thirty (30) days from receipt of disapproval by EPA. ~~The modified plan or report shall be submitted to EPA in writing for review.~~ Should the Permittee take exception to all or part of EPA's decision or disapproval, the Permittee shall submit to EPA a written statement of grounds for the exception within fifteen (15) days from receipt of the decision or disapproval of EPA. Representatives of EPA and the Permittee may confer in person or by telephone in an attempt to resolve any disagreement. In the event that resolution is not reached within forty-five (45) days from receipt of disapproval by EPA, the Permittee shall revise the plan or report as required by EPA and submit the plan or report to EPA. In the event that resolution is reached, the Permittee shall submit to EPA a revised plan or report within 30 days from the date agreement is reached. The Permittee, upon submission of the revised plan or report, shall indicate whether or not it agrees in whole or in part with such plan or report. In the event of any disagreement, EPA shall modify the permit in accordance with 40 CFR §270.41.

C. PERMIT MODIFICATION

The Regional Administrator will modify the permit in accordance with 40 CFR §270.41 and Section 3005(c) of RCRA in the event that investigations required in this permit, or any other information available to the Regional Administrator, identifies solid waste management units that require corrective measures. Financial assurance by

the Permittee is required if corrective measures are necessary (40 CFR §264.101(b)). This paragraph C does not limit EPA's authority to otherwise modify this permit in accordance with 40 CFR Part 270, Subpart D.

D. CERTIFICATION

The Permittee shall maintain a certification at the facility containing the information required by 40 CFR §264.73(b)(9).

E. CLOSURE AND NOTIFICATION REQUIREMENTS

1. Closure

- a. When the Permittee plans to replace or eliminate solid waste management units currently in use, the subject units shall be closed in a manner that:
 - (1) Minimizes the need for further maintenance;
and
 - (2) Controls, minimizes or eliminates to the extent necessary to prevent threats to human health and the environment, post-closure escape of hazardous waste or hazardous constituents, leachate contaminated rainfall, or waste decomposition products to the groundwater or surface waters or to the atmosphere (25 PA Code §75.264(o)).
- b. Upon completion of such closure, the Permittee shall maintain a record of the closure activity in the facility operating record.

2. Required Notices

- a. One year after the effective date of this permit and annually thereafter, the Permittee shall place a notice in the facility operating record for each year during which no releases of hazardous waste or constituents originate at any solid waste management unit at the facility. The notice shall state:

"During the period of _____ to _____,
there were no releases of hazardous waste or
constituents from any solid waste management units
at this facility."

PART III - INCINERATOR OPERATIONS

- A. The Permittee shall control the total feed of hazardous metals to the incinerator as specified below. The allowable feed rates apply to the combined total of all incinerator feeds, regardless of whether they are specifically regulated as RCRA hazardous wastes, and to all chemical forms of the listed metals.

<u>Metal</u>	<u>Maximum Feed Rate (pounds per hour)</u>
Antimony	0.048
Barium	297.0
Lead	0.015
Mercury	0.048
Silver	110.0
Thallium	0.048

- B. For the following metals only, the maximum feed rate of all four metals shall be set such that:

$$\sum_{i=1}^n \frac{w_i}{A_i} < 1.0$$

where: w_i = the actual feed rate of the i th metal constituent

A_i = the allowable feed rate of the i th constituent (specified below)

n = the number of these metals present in the total incinerator feed

<u>Metal</u>	<u>Maximum Feed Rate (pounds per hour)</u>
Arsenic	0.00038
Beryllium	0.25
Cadmium	0.00091
Chromium	0.050

- C. The total feed rate to the incinerator of chlorine in any chemical form shall not exceed 26 pounds per hour.
- D. Within 60 days after the effective date of this permit, the Permittee shall submit to EPA for approval a detailed waste management plan that is sufficient to ensure compliance with the feed limitations specified above. This plan shall include, but is not limited to:
1. Waste sampling and analysis techniques and frequencies,
 2. Management procedures, including quality control methods, to ensure that constituent feed rates listed above will not be exceeded at any time, and
 3. Record keeping practices.

SEP 27 1989

DATE SIGNED


STEPHEN R. WASSERSUG, DIRECTOR
HAZARDOUS WASTE MANAGEMENT DIVISION

ATTACHMENT A
VERIFICATION INVESTIGATION WORK PLAN
REQUIREMENTS

The purpose of the Verification Investigation is to verify, through integrity testing or any sampling activity, the occurrence or potential for occurrence of a release of hazardous waste or hazardous constituents from a solid waste management unit.

Each Verification Investigation Work Plan shall meet the following requirements, in addition to the specific requirements and deadlines set forth in Part II of this permit:

1. EPA and Pennsylvania Department of Environmental Resources, Bureau of Waste Management reserve the right to split samples from any sampling activity which takes place as part of the investigation.
2. The Verification Investigation Work Plan shall be sufficient to determine the presence of hazardous waste or constituents at the solid waste management unit and enable the Permittee to recommend appropriate further actions.
3. The Verification Investigation Work Plan shall include a Project Management Plan which will include a discussion of the technical approach, schedules, budget and personnel. The Project Management Plan will also include a description of qualifications of personnel performing or directing the Verification Investigation, including contractor personnel. This plan shall also document the overall management approach to the Verification Investigation.
4. Each plan shall include a sampling and analysis program for all sampling and analyses. This program shall meet the requirements set forth in Attachment C of this permit.
5. The Permittee shall select a sampling regime and conduct sampling and analysis activities capable of yielding representative samples. The analytical program shall, at minimum, include the "Skinner List" and/or 40 CFR 264 Appendix IX parameters as directed in the Permit.
 - a. The list of hazardous waste and/or constituents suspected to be present in refinery wastes and referred to as the "Skinner List" which consists of both 40 CFR 261 Appendix VIII constituents and Non-Appendix VIII constituents of concern. These constituents are listed below:
 - **Acetonitrile (Ethanenitrile)
 - **Acrolein (2-Propenal)
 - **Acrylonitrile (2-Propenenitrile)
 - Aniline (Benzenamine)
 - Antimony
 - Arsenic
 - Barium
 - Benz (c) acridine (3,4-Benzacridine)
 - Benz (a) anthracene (1,2-Benzanthracene)

- **Benzene (Cyclohexatriene)
- Benzenethiol (Thiophenol)
- Benzidine (1,1-Biphenyl-4,4 diamine)
- Benzo(b)fluoranthene (2,3-Benzofluoranthene)
- Benzo(j)Fluoranthene (7,8-Benzofluoranthene)
- Benzo(a)pyrene (3,4-Benzopyrene)
- **Benzyl chloride (Benzene, (chloromethyl)-)
- Beryllium
- Bis (2-chloroethyl) ether (Ethane, 1,1 -oxybis (2-chloro-))
- Bis (2-chloroisopropyl) ether (Propane, 2,2 -oxybis (2-chloro-))
- **Bis (chloromethyl) ether (Methane, oxybis (chloro-))
- Bis (2-ethylhexyl) phthalate (1,2-Benzenedicarboxylic acid, bis (2-ethylhexyl) ester)
- Butyl benzyl phthalate (1,2-Benzenedicarboxylic acid, butyl phenylmethyl ester)
- Cadmium
- Carbon disulfide (Carbon bisulfide)
- p-Chloro-m-cresol
- **Chlorobenzene (Benzene, chloro-)
- **Chloroform (Methane, trichloro-)
- **Chloromethane (Methyl chloride)
- 2-Chloronaphthalene (Naphthalene, beta-chloro-)
- 2-Chlorophenol (Phenol, o-chloro-)
- Chromium
- Chrysene (1,2-Benzphenanthrene)
- Cresols (Cresylic acid) (Phenol, methyl-)
- **Crotonaldehyde (2-Butenal)
- Cumene (Isopropyl Benzene)
- Cyanide
- Dibenz(a,h)acridine (1,2,5,6-Dibenzacridine)
- Dibenz(a,j)acridine (1,2,7,8-Dibenzacridine)
- Dibenz(a,h)anthracene (1,2,5,6-Dibenzanthracene)
- 7H-Dibenzo(c,g)carbazole (3,4,5,6-Dibenzcarbazole)
- Dibenzo(a,e)pyrene (1,2,4,5-Dibenzpyrene)
- Dibenzo(a,h)pyrene (1,2,5,6-Dibenzpyrene)
- Dibenzo(a,i)pyrene (1,2,7,8-Dibenzpyrene)
- **1,2-Dibromoethane (Ethylene dibromide)
- Di-n-butyl phthalate (1,2-Benzenedicarboxylic acid, dibutyl ester)
- *Dichlorobenzenes
- **1,2-Dichloroethane (Ethylene dichloride)
- **trans-1,2-Dichloroethene (1,2-Dichlorethylene)
- **1,1-Dichloroethylene (Ethene, 1,1-dichloro-)
- **Dichloromethane (Methylene chloride)
- **Dichloropropane
- Dichloropropanol
- Diethyl phthalate (1,2-Benzenedicarboxylic acid, diethyl ester)
- 7,12-Dimethylbenz(a)anthracene
- 2,4-Dimethylphenol (Phenol, 2,4-dimethyl-)
- Dimethyl phthalate (1,2-Benzenedicarboxylic acid, dimethyl ester)
- 4,6-Dinitro-o-cresol
- 2,4-Dinitrophenol (phenol, 2,4-nitro-)
- 2,4-Dinitrotoluene (Benzene, 1-methyl-2,4-dinitro-)
- Di-n-octyl phthalate (1,2-Benzenedicarboxylic acid, dioctyl ester)

- **1,4-Dioxane (1,4-Diethylene oxide)
- 1,2-Diphenylhydrazine (Hydrazine, 1,2-Diphenyl-)
- **Ethyleneimine (Aziridine)
- **Ethylene oxide (Oxirane)
- Fluoranthene (Benzo (j,k) fluorene)
- **Formaldehyde
- Hydrogen sulfide (Sulfur hydride)
- Indeno (1,2,3-cd)pyrene (1 10(1,2-phenylene)pyrene)
- Lead
- Mercury
- Methanethiol (Thiomethanol)
- 3-Methylcholanthrene (Benz(j)aceanthrylene, 1,2-dihydro-3-methyl-)
- **Methyl ethyl ketone (MEK) (2-Butanone)
- Naphthalene
- Nickel
- p-Nitroaniline (Benzenamine, 4-nitro-)
- Nitrobenzene (Benzene, nitro-)
- 4-Nitrophenol (Phenol, pentachloro-)
- Pentachlorophenol (Phenol, pentachloro-)
- Phenol (Benzene, hydroxy-)
- Propyl benzene
- Pyridine
- Selenium
- **Tetrachloroethanes
- **Tetrachloroethylene (Ethene, 1,1,2,2-tetra chloro-)
- **Toluene (Benzene, methyl-)
- *Trichlorobenzenes
- **Trichloroethanes
- **Trichloroethene (Trichloroethylene)
- *Trichlorophenols
- Vanadium
- Xylene

Non-Appendix VIII Constituents of Concern

- Cobalt
- 1-Methylnaphthalene
- Styrene
- Hydroquinone
- Anthracene
- Indene
- 5-Nitro acenaphthene
- Quinoline
- Phenanthrene
- Pyrene

b. The list of hazardous waste and/or constituents known as 40 CFR 264, Appendix IX.

-
- * If any of these groups of compounds are found, the specific isomers listed in Appendix VIII should be identified.
 - ** Use Test Method 8240 for these volatile compounds.
 - *** Use Test Method 3050 in SW-846 for all metals.

ATTACHMENT B
RCRA FACILITY INVESTIGATION WORK PLAN
REQUIREMENTS

The purpose of this RCRA Facility Investigation (RFI) is to determine the nature and extent of releases of hazardous waste or constituents from solid waste management units at the facility and to gather all necessary data to support a corrective measures Study. The Permittee shall furnish all personnel, materials, and services necessary for, or incidental to, performing the RCRA Facility Investigation at the Chevron (USA) Inc.

Each RFI Work Plan shall meet the following requirements, in addition to the specific requirements and deadlines set forth in part II of this permit:

1. EPA and the Pennsylvania Department of Environmental Resources, Bureau of Waste Management reserve the right to request split samples from any sampling activity which takes place as part of the investigation.
2. The RFI Work Plan shall include a Project Management Plan which will include a discussion of the technical approach, schedules, budget and personnel. The Project Management Plan will also include a description of qualifications of personnel ~~performing or directing the RFI, including contractor personnel.~~ This plan shall also document the overall management approach to the RFI.
3. The RFI Work Plan shall include a Data Collection Quality Assurance Plan, a Data Management Plan, and a Health and Safety Plan, developed as per the requirements set forth in Attachment B of this permit.
4. The RFI Work Plan shall include a Community Relations Plan, for the dissemination of information to the public regarding RFI activities and results.
5. The RFI Work Plan shall include provisions for carrying out investigations necessary to characterize the facility, define the source, define the degree and extent of contamination, and identify actual or potential receptors. The investigations should result in data of adequate technical quality to support the development and evaluation of a corrective measure alternative or alternatives in a Corrective Measures Study. The RFI Work Plan shall include provisions for characterizing the following:

A. Environmental Setting

The Permittee shall collect information to supplement and verify existing information on the environmental setting at the facility. The RFI Work Plan shall provide for characterization of the following:

(1) Hydrogeology

The following shall be provided:

- a. A description of the regional and facility specific geologic and hydrogeologic characteristics affecting groundwater flow beneath the facility, including:
 - i) Regional and facility specific stratigraphy: description of strata including strike and dip, identification of stratigraphic contacts;
 - ii) Structural geology: description of local and regional structural features (e.g., folding, faulting, tilting, jointing, etc.);
 - iii) Depositional history;
 - iv) Identification and characterization of areas and amounts of recharge and discharge;
 - v) Regional and facility specific groundwater flow patterns; and
 - vi) Characterize seasonal variations in the groundwater flow regime.
- b. An analysis of any topographic features that might influence the groundwater flow system. (Note: Stereographic analysis of aerial photographs may aid in this analysis).
- c. Based on field data, test, and cores, a representative and accurate classification and description of the hydrogeologic units which may be part of the migration pathways at the facility (i.e., the aquifers and any intervening saturated and unsaturated units), including:
 - i) Hydraulic conductivity and porosity (total and effective);
 - ii) Lithology, grain size, sorting, degree of cementation;
 - iii) An interpretation of hydraulic interconnections between saturated zones; and
 - iv) The attenuation capacity and mechanisms of the natural earth materials (e.g., ion exchange capacity, organic carbon content, mineral content, etc.)

- d. Based on field studies and cores, structural geology and hydrogeologic cross sections showing the extent (depth, thickness, lateral extent) of hydrogeologic units which may be part of the migration pathways identifying:
 - i) Sand and gravel deposits in unconsolidated deposits;
 - ii) Zones of fracturing and channeling in consolidated or unconsolidated deposits;
 - iii) Zones of higher permeability or low permeability that might direct and restrict the flow of contaminants;
 - iv) The uppermost aquifer: geologic formation, group of formations, or part of a formation capable of yielding a significant amount of groundwater to wells or springs; and
 - v) Water-bearing zones above the first confining layer that may serve as a pathway for contaminant migration including perched zones of saturation.
- e. Based on data obtained from groundwater monitoring wells and ~~piezometers installed upgradient and downgradient~~ of the potential contaminant source, a representative description of water level or fluid pressure monitoring including:
 - i) Water level contour and/or potentiometric maps;
 - ii) Hydrologic cross sections showing vertical gradients;
 - iii) The flow system, including the vertical and horizontal components of flow; and
 - iv) Any temporal changes in hydraulic gradients, for example, due to tidal or seasonal influences.
- f. A description of man-made influences that may affect the hydrogeology of the site, identifying:
 - i) Active and inactive local water supply and production wells with an approximate schedule of pumping; and
 - ii) Man-made hydraulic structures (pipelines, french drains, ditches, unlined ponds, septic tanks, NPDES outfalls, retention areas, etc.).

(2) Soils

The RFI shall include characterization of the soil and rock units above the water table in the vicinity of the contaminant release. Such characterization shall include but not be limited to, the following information:

- a. SCS soil classification;
- b. Surface soil distribution;
- c. Soil profile, including ASTM classification of soils;
- d. Transects of soil stratigraphy;
- e. Hydraulic conductivity (saturated and unsaturated);
- f. Relative permeability;
- g. Bulk density;
- h. Porosity;
- i. Soil sorptive capacity;
- j. Cation exchange capacity (CEC);
- k. Soil organic content;
- l. Soil pH;
- m. Particle size distribution;
- n. Depth of water table;
- o. Moisture content;
- p. Effect of stratification on unsaturated flow;
- q. Infiltration;
- r. Evapotranspiration;
- s. Storage capacity;
- t. Vertical flow rate; and
- u. Mineral content.

(3) Surface Water and Sediment

The RFI shall include characterization of the surface water bodies in the vicinity of the facility. Such characterization shall include, but not be limited to, the following activities and information:

- a. Description of the temporal and permanent surface water bodies including:
 - i) For lakes and estuaries: location, elevation, surface area, inflow, outflow, depth, temperature stratification, and volume;
 - ii) For impoundments: location, elevation, surface area depth, volume, freeboard, and purpose of impoundment;
 - iii) For streams, ditches, drains, swamps and channels: location, elevation, flow, velocity, depth, width, seasonal fluctuations, and flooding tendencies (i.e., 100 year event);
 - iv) Drainage patterns; and
 - v) Evapotranspiration.

- b. Description of the chemistry of the natural surface water and sediments. This includes determining the pH, total dissolved solids, total suspended solids, biological oxygen demand, alkalinity, conductivity, dissolved oxygen profiles, nutrients (NH_3 , NO_3/NO_2 , PO_4^{3-}), chemical oxygen demand, total organic carbon, specific contaminant concentrations, etc.
- c. Description of sediment characteristics including:
 - i) Deposition area;
 - ii) Thickness profile; and
 - iii) Physical and chemical parameters (e.g., grain size, density, organic carbon content, ion exchange capacity, pH, etc.).

B. Source Characterization

The Permittee shall collect analytic data to completely characterize the wastes placed in the unit and the areas where wastes have been placed, collected or removed including: type; quantity; physical form; disposition (containment or nature of deposits); and facility characteristics affecting release (e.g., facility security, and engineered barriers). The RFI Work Plan shall include provisions for quantification of the following specific characteristics:

(1) Unit/Disposal Area Characteristics:

- a. Location of unit/disposal area;
- b. Type of unit/disposal area;
- c. Design features;
- d. Operating practices (past and present);
- e. Period of operation;
- f. Age of unit/disposal area;
- g. General physical conditions; and
- h. Method used to close the unit/disposal area.

(2) Waste Characteristics:

- a. Type of waste placed in the unit;
 - i) Hazardous classification (e.g., ignitable, flammable, reactive, corrosive, EP Toxicity, oxidizing or reducing agent);
 - ii) Quantity; and
 - iii) Chemical composition.

b. Physical and Chemical Characteristics;

- i) Physical form (solid, liquid, gas);
- ii) Physical description (e.g., powder, oily sludge);
- iii) Temperature;
- iv) pH;
- v) General chemical class (e.g., acid, base, solvent);
- vi) Molecular weight;
- vii) Density;
- viii) Boiling point;
- ix) Viscosity;
- x) Solubility in water;
- xi) Cohesiveness of the waste;
- xii) Vapor pressure; and
- xiii) Flash point.

c. Migration and dispersal characteristics of the waste;

- i) Sorption;
- ii) Biodegradability; bioconcentration, biotransformation;
- iii) Photodegradation rates;
- iv) Hydrolysis rates; and
- v) Chemical transformations.

The Permittee shall document in writing the procedures used in making the above determinations.

C. Contamination Characterization

The Permittee shall collect analytical data on groundwater, soils, surface water, sediment, and subsurface gas contamination at and in the vicinity of the facility. This data shall be sufficient to define the extent origin, direction, and rate of movement of contaminant plumes. Data shall include time and location of sampling, media sampled, concentrations found, and conditions during sampling, and the identity of the individuals performing the sampling and analysis. The Permittee shall address the following types of contamination at and surrounding adjacent to the facility:

(1) Groundwater Contamination

- a. The Permittee shall conduct Groundwater Investigation to characterize any plumes of contamination at the facility. This investigation shall, at a minimum, provide the following information:
 - i) A description of the horizontal and vertical extent of any immiscible or dissolved plume(s) originating from the facility;
 - ii) The horizontal and vertical direction of contamination movement;
 - iii) The velocity of contaminant movement;
 - iv) The horizontal and vertical concentration profiles of all Priority Pollutant constituents plus the top ten peaks identified through gas chromatography/mass spectroscopy in the plume(s);
 - v) An evaluation of factors influencing the plume movement; and
 - vi) An extrapolation of future contaminant movement.

The Permittee shall document in writing, the procedures used in making the above determinations (e.g., well design, well construction, geophysics, modeling, etc.).

- b. Each plan shall include the locations, design and installation procedures for any additional groundwater monitoring wells required to complete the monitoring well network at each area as necessary to meet the Remedial Investigation objectives. These wells may be used in conjunction with existing wells in the area. All information required of the new wells shall also be required of the existing wells. The monitoring well network shall meet the following requirements:
 - i) The upgradient wells must be capable of yielding samples that are representative of background water quality in the uppermost aquifer and are not affected by any solid waste management unit. The number and location of the wells must be sufficient to characterize the spatial variability of background water.
 - ii) The downgradient wells must be capable of immediately detecting any statistically significant amounts of hazardous waste or constituents that migrate from each solid waste management unit into the groundwater.

- iii) The monitoring system shall be designed to operate for a period of long-term duration.

When developing this information, the Permittee shall refer to the Technical Enforcement Guidance Document (EPA, September 1986) to determine methods and materials that are acceptable to EPA.

- c. Each plan shall provide a description of the ground water monitoring wells including the following information:
 - i) A description and map of well locations, including a survey of each well's surface reference point and the elevation of the top of its casing.
 - ii) Size and depth of each well.
 - iii) Description of well intake design, including screen slot size and length, filter pack materials and method of filter pack emplacement.
 - iv) Type of well casing and screen materials. The choice of well materials shall be made in light of the parameters to be monitored and the nature of the leachate that could potentially migrate from the facility. The well materials shall: (1) minimize the potential of absorption of constituents from the samples; and (2) maintain their integrity for the life of the system.
 - v) Description of methods used to seal the well from the surface and prevent downward migration of contaminants through the well annulus.
 - vi) Description of the methods and procedures used to develop the well.
- d. The Permittee shall select a sampling regime and conduct sampling and analysis activities capable of yielding representative samples. The sampling program shall include the following elements:
 - i) A list of parameters capable of detecting releases of hazardous waste or hazardous constituents into groundwater. The parameters shall be representative of hazardous constituents at least as mobile as the most mobile hazardous constituent that may be present after considering:
 - The types, quantities, and concentrations of hazardous constituents in wastes managed at the solid waste management unit. Incidental constituents which may be released into the unit area from process areas shall be included in this list of analyses;

- The mobility, stability, and persistence of hazardous waste constituents or their reaction products in the unsaturated zone beneath the waste management area;
- The detection ability of the indicator parameters, waste constituents of reactive products in groundwater;
- The concentration of and the natural variation (known or suspected) of the proposed monitoring parameters in background media; and
- The list must include the basis for selecting each proposed indicator parameter, including any analysis or calculations performed. The basis for selection shall, where possible, include chemical analysis of the unit's waste and/or leachate as appropriate. The list shall also include parameters to characterize the site-specific chemistry of groundwater at the site including, but not limited to, the major anions and cations that make up the bulk of dissolved solids in water (i.e., Cl^- , Fe^{+3} , Mn^{+2} , Na^+ , $(\text{SO}_4)^{-2}$, Ca^{+2} , Mg^{+2} , K^+ , NO^{-3} , PO^{-3} , silicate, and ammonium).

(2) Soil Contamination

The Permittee shall conduct an investigation to characterize the contamination of the soil and rock units above the water table at and in the vicinity of the contaminant release. The investigation shall include the following information:

- a. A description of the vertical and horizontal extent of contamination.
- b. A description of contaminant and soil chemical properties within the contaminant source area and plume. This includes contaminant solubility, specification, adsorption, leachability, exchange capacity, biodegradability, hydrolysis, photolysis, oxidation and other factors that might affect contaminant migration and transformation.
- c. Specific contaminant concentrations.
- d. The velocity and direction of contaminant movement.
- e. An extrapolation of future contaminant movement.

The Permittee shall document the procedures used in making the above determinations.

(3) Surface Water and Sediment Contamination

The Permittee shall conduct a surface water investigation to characterize contamination in surface water bodies resulting from contaminant releases at and from the facility.

The investigation shall include, but not be limited to, the following information:

- a. A description of the horizontal and vertical extent of any immiscible or dissolved plume(s) originating from the facility, and the extent of contamination in underlying sediments;
- b. The horizontal and vertical direction of contaminant movement;
- c. The contaminant velocity;
- d. An evaluation of the physical, biological and chemical factors influencing contaminant movement;
- e. An extrapolation of future contaminant movement; and
- f. ~~A description of the chemistry of the contaminated surface waters and sediments. This includes determining the pH, total dissolved solids and specific contaminant concentrations;~~

The Permittee shall document the procedures used in making the above determinations.

(4) Subsurface Gas Contamination

The Permittee shall conduct an investigation of groundwater to characterize subsurface gases emitted from buried hazardous waste and hazardous constituents. This investigation shall include the following information:

- a. A description of the horizontal and vertical extent of subsurface gases mitigation;
- b. The chemical composition of the gases being emitted;
- c. The rate, amount, and density of the gases being emitted; and
- d. Horizontal and vertical concentration profiles of the subsurface gases emitted.

The Permittee shall document the procedures used in making the above determinations.

ATTACHMENT C
SAMPLING AND ANALYSIS AND DATA MANAGEMENT PROGRAM
REQUIREMENTS

Each Verification Investigation or RCRA Facility Investigation Work Plan shall include a plan to document all monitoring procedures (sampling, field measurements and sample analysis performed during the investigation to characterize the environmental setting, source, and contamination) so as to ensure that all information, data and resulting decisions are technically sound, statistically valid, and properly documented. The plan shall include the following:

A. Data Quality Assurance Plan

1. Data Collection Strategy

The strategy section of the Data Collection Quality Assurance Plan shall include but not be limited to the following:

- a. Description of the intended uses for the data, and the necessary level of precision and accuracy for these intended uses;
- b. Description of methods and procedures to be used to assess the precision, accuracy and completeness of the measurement data;
- c. Description of the rationale used to assure that the data accurately and precisely represent a characteristic of a population, parameter variations at a sampling point, a process condition or an environmental condition. Examples of factors which shall be considered and discussed include:
 - (1) Environmental conditions at the time of sampling;
 - (2) Number of sampling points;
 - (3) Representativeness of selected media; and
 - (4) Representativeness of selected analytical parameters.
- d. Description of the measures to be taken to assure that the following data sets can be compared to each other:
 - (1) Investigation data generated by the Permittee over some time period;
 - (2) Investigation data generated by an outside laboratory or consultant versus data generated by the Permittee;
 - (3) Data generated by separate consultants or laboratories; and

- (4) Data generated by an outside consultant or laboratory over some time period.
- e. Details relating to the schedule and information to be provided in quality assurance reports. The reports should include but not be limited to:
 - (1) Periodic assessment of measurement data accuracy, precision, and completeness;
 - (2) Results of performance audits;
 - (3) Results of system audits;
 - (4) Significant quality assurance problems and recommended solutions; and
 - (5) Resolutions of previously stated problems.

2. Sampling

The Sampling section of the Data Collection Quality Assurance Plan shall discuss:

- a. ~~Selecting appropriate sampling locations, depths, etc.;~~
- b. Providing a statistically sufficient number of sampling sites;
- c. Measuring all necessary ancillary data;
- d. Determining conditions under which sampling should be conducted;
- e. Determining which media are to be sampled (e.g., groundwater, air, soil, sediment etc.);
- f. Determining which parameters are to be measured and where;
- g. Selecting the frequency of sampling and length of sampling period;
- h. Selecting the type of sample (e.g., composites vs. grabs) and number of samples to be collected;
- i. Measures to be taken to prevent contamination of the sampling equipment and cross contamination between sampling points;
- j. Documenting field sampling operations and procedures, including:
 - (1) Documentation of procedures for preparation of reagents or supplies which become an integral part of the sample (e.g., filters, and adsorbing reagents);

- (2) Procedures and forms for recording the exact location and specific considerations associated with sample acquisition;
- (3) Documentation of specific sample preservation method;
- (4) Calibration of field devices;
- (5) Collection of replicate samples;
- (6) Submission of field-biased blanks, where appropriate;
- (7) Potential interferences present at the facility;
- (8) Construction materials and technique, associated with monitoring wells and piezometers;
- (9) Field equipment listing and sample containers;
- (10) Sampling order; and
- (11) Decontamination procedures.

~~k. Selecting appropriate sample containers;~~

l. Sample preservation; and

m. Chain-of-custody, including:

- (1) Standardized field tracking reporting forms to establish sample custody in the field prior to and during shipment; and
- (2) Pre-prepared sample labels containing all information necessary for effective sample tracking.

3. Field Measurements

The Field Measurements section of the Data Collection Quality Assurance Plan shall discuss:

- a. Selecting appropriate field measurement locations, depths, etc.;
- b. Providing a statistically sufficient number of field measurements;
- c. Measuring all necessary ancillary data;
- d. Determining conditions under which field measurements should be conducted;
- e. Determining which media are to be addressed by appropriate field measurements (e.g., groundwater, air, soil, sediment, etc.);

- f. Determining which parameters are to be measured and where;
- g. Selecting the frequency of field measurement and length of field measurements period; and
- h. Documenting field measurement operations and procedures, including:
 - (1) Procedures and forms for recording raw data and the exact location, time, and facility-specific considerations associated with the data acquisition;
 - (2) Calibration of field devices;
 - (3) Collection of replicate measurements;
 - (4) Submission of field-biased blanks, where appropriate;
 - (5) Potential interferences present at the facility;
 - (6) Construction materials and techniques associated with monitoring wells and piezometers used to collect field data;
 - (7) Field equipment listing;
 - (8) Order in which field measurements were made; and
 - (9) Decontamination procedures.

4. Sample Analysis

The Sample Analysis section of the Data Collection Quality Assurance Plan shall specify the following:

- a. Chain-of-custody procedures, including:
 - (1) Identification of a responsible party to act as sample custodian at the laboratory facility authorized to sign for incoming field samples, obtain documents of shipment, and verify the data entered onto the sample custody records;
 - (2) Provision for a laboratory sample custody log consisting of serially numbered standard lab-tracing report sheets; and
 - (3) Specification of laboratory sample custody procedures for sample handling, storage, and dispersment for analysis.
- b. Sample storage procedures and storage times;
- c. Sample preparation methods;

- d. Analytical procedures, including:
 - (1) Scope and application of the procedure;
 - (2) Sample matrix;
 - (3) Potential interferences;
 - (4) Precision and accuracy of the methodology; and
 - (5) Method detection limits.
- e. Calibration procedures and frequency;
- f. Data reduction, validation and reporting;
- g. Internal quality control checks, laboratory performance and systems audits and frequency, including:
 - (1) Method blank(s);
 - (2) Laboratory control sample(s);
 - (3) Calibration check sample(s);
 - (4) Replicate sample(s);
 - (5) Matrix-spiked sample(s);
 - (6) "Blind" quality control;
 - (7) Control charts;
 - (8) Surrogate samples;
 - (9) Zero and span gases; and
 - (10) Reagent quality control checks.
- [A performance audit will be conducted by U.S. EPA on the laboratories selected by the Owner/Operator [Permittee]. This audit must be completed and approved prior to the facility investigation.]
- h. Preventive maintenance procedures and schedules;
- i. Corrective action (for laboratory problems);
- j. Turnaround time.

B. Data Management Plan

The Permittee shall develop and initiate a Data Management Plan to document and track investigation data and results. This plan shall identify and set up data documentation materials and procedures, project file requirements, and project-related progress reporting procedures and documents. The plan shall also provide the format to be used to present the raw data and conclusions of the investigation.

1. Data Record

The data record shall include the following:

- a. Unique sample or field measurement code;
- b. Sampling or field measurement location and sample or measurement type;
- c. Sampling or field measurement raw data;
- d. Laboratory analysis ID number;
- e. Property or component measured; and
- f. Result of analysis (e.g., concentration).

2. Tabular Displays

The following data shall be presented in tabular displays:

- a. Unsorted (raw) data;
- b. Results for each medium, or for each constituent monitored;
- c. Data reduction for statistical analysis;
- d. Sorting of data by potential stratification factors (e.g., location, soil layer, topography); and
- e. Summary data.

3. Graphical Displays

The following data shall be presented in graphical formats (e.g., bar graphs, line graphs, area or plan maps, isopleth plots, cross-sectional plots or transects, three dimensional graphs, etc.):

- a. Display sampling location and sampling grid;
- b. Indicate boundaries of sampling area, and areas where more data are required;

- c. Displays level of contamination at each sampling location:
- d. Display geographical extent of contamination:
- e. Display contamination levels, averages, and maxima:
- f. Illustrate changes in concentration in relation to distance from the source, time, depth or other parameters; and
- g. Indicate feature affecting intramedia transport and show potential receptors.

ATTACHMENT D

RCRA FACILITY INVESTIGATION REPORT REQUIREMENTS

Upon conclusion of intermediate steps of the RFI, under the schedule outlined in Part II body of this permit, the Permittee shall submit results as required. Upon completion of the RCRA Facility Investigation (RFI) pursuant to the schedule outlined in Part II of this permit, the Permittee shall prepare a RFI Report. The report shall present all results of the RFI and shall include the following:

A. Data Analysis

The Permittee shall analyze all facility investigation data outlined in the RFI Work Plan and prepare a report on the type and extent of contamination at each unit including migration pathways. The report shall describe the extent of contamination (qualitative/quantitative) in relation to background levels indicative for the area.

B. Potential Receptors

The Permittee shall include in the RFI Report a presentation of data describing the human populations and environmental systems that are susceptible to contaminant exposure from the facility. ~~Chemical analysis of biological samples may be needed.~~ Data on observable effects in ecosystems shall also be reported. The following characteristics shall be identified:

1. Local uses and possible future uses of ground water:
 - a. Type of use (e.g., drinking water source: municipal or residential, agricultural, domestic/non-potable, and industrial); and
 - b. Location of groundwater users, including wells and discharge areas.
2. Local uses and possible future uses of surface waters draining the facility:
 - a. Domestic and municipal (e.g., potable and lawn/gardening watering);
 - b. Recreational (e.g., swimming, fishing);
 - c. Agricultural;
 - d. Industrial; and
 - e. Environmental (e.g., fish and wildlife propagation).
3. Human use of or access to the facility and adjacent lands, including but not limited to:
 - a. Recreation;
 - b. Hunting;
 - c. Residential;
 - d. Commercial;

- e. Zoning; and
 - f. Relationship between population locations and prevailing wind direction.
4. A description of the biota in surface water bodies on, adjacent to, or affected by the facility.
 5. A description of the ecology overlying and adjacent to the facility.
 6. A demographic profile of the people who use or have access to the facility and adjacent land, including, but not limited to: age; sex; and sensitive subgroups.
 7. A description of any endangered or threatened species near the facility.

C. Laboratory and Bench Scale Studies

If specifically required at any time during the RFI, the Permittee shall conduct laboratory and/or bench scale studies to determine the applicability of corrective measure technology or technologies to facility conditions. The Permittee shall analyze the technologies, based on literature review, vendor contracts, and past experience to determine the testing requirements.

The Permittee shall develop a testing plan identifying the type(s) and goal(s) of the study(ies), the level of effort needed, and the procedures to be used for data management and interpretation.

Upon completion of the testing, the Permittee shall evaluate the testing results to assess the technology or technologies with respect to the site-specific questions identified in the test plan.

The Permittee shall prepare a report summarizing the testing program and its results, both positive and negative.

ATTACHMENT E

SCOPE OF WORK FOR A CORRECTIVE MEASURES STUDY

The Corrective Measures study shall comply with the following format:

PURPOSE

The purpose of this Corrective Measure Study (CMS) is to develop and evaluate the corrective action alternative or alternatives and to recommend the corrective measure or measures to be taken at the facility. The Permittee will furnish the personnel, materials and services necessary to prepare the Corrective Measure Study, except as otherwise specified.

SCOPE

The Corrective Measures Study consists of four tasks:

Task I: Identification and Development of the Corrective Measure Alternative or Alternatives

~~A. Description of Current Situation~~

B. Establishment of Corrective Action Objectives

C. Screening of Corrective Measures Technologies

D. Identification of the Corrective Measure Alternative or Alternatives

Task II: Evaluation of the Corrective Measure Alternative or Alternatives

A. Technical/Environmental/Human Health/Institutional

Task III: Justification and Recommendation of the Corrective Measure or Measures

A. Technical

B. Environmental

C. Human Health

Task IV: Reports

A. Progress

B. Draft

C. Final

TASK I: IDENTIFICATION AND DEVELOPMENT OF THE CORRECTIVE ACTION ALTERNATIVE OR ALTERNATIVES

Based on the results of the RCRA Facility Investigation (RFI), the Permittee shall identify, screen and develop the alternative or alternatives for removal, containment, treatment and/or other remediation of the contamination based on the objective established for the corrective action.

A. Description of Current Situation

The Permittee shall submit an update to the information describing the current situation at the facility and the known nature and extent of the contamination as documented by the RFI Report. The Permittee shall provide an update to information regarding previous response activities and any interim measures which have or are being implemented at the facility. The Permittee shall also make a facility-specific statement of the purpose for the response, based on the results of the RFI. The statement of purpose should identify the actual or potential exposure pathways that should be addressed by corrective measures.

B. Establishment of Corrective Action Objectives

The Permittee, in conjunction with the U.S. EPA, shall establish site specific objectives for the corrective action. These objectives shall be based on public health and environmental criteria, information gathered during the RFI, EPA guidance, and the requirements of any applicable Federal statutes. At a minimum, all corrective actions concerning ground water releases from regulated units must be consistent with, and as stringent as, those required under 40 CFR 264.100.

C. Screening of Corrective Measure Technologies

The Permittee shall review the results of the RFI and identify corrective measure technologies which are applicable at the facility. The Permittee shall screen the identified corrective measure technologies to eliminate those that may prove infeasible to implement, that rely on technologies unlikely to perform satisfactorily or reliably, or that do not achieve the corrective measure objectives within a reasonable time period. This screening process focuses on eliminating those technologies which have severe limitations for a given set of waste and site-specific conditions. The screening step may also eliminate technologies based on inherent technology limitations.

Site, waste, and technology characteristics which are used to screen inapplicable technologies are described in more detail below:

1. Site Characteristics

Site data should be reviewed to identify conditions that may limit or promote the use of certain technologies. Technologies whose use is clearly precluded by site characteristics should be eliminated from further consideration;

2. Waste Characteristics

Identification of waste characteristics that limit the effectiveness or feasibility of technologies is an important part of the screening process. Technologies clearly limited by these waste characteristics should be eliminated from consideration. Waste characteristics particularly affect the feasibility of in-situ methods, direct treatment methods, and land disposal (on/off-site); and

3. Technology Limitations

During the screening process, the level of technology development, performance record, and inherent construction, operation, and maintenance problems should be identified for each technology considered. Technologies that are unreliable, perform poorly, or are not fully demonstrated may be eliminated in the screening process. For example, certain treatment methods have been developed to appoint where they can be implemented in the field without extensive technology transfer or development.

D. Identification of the Corrective Measure Alternative or Alternatives

The Permittee shall develop the Correct Measure alternative or alternatives based on the corrective action objectives and analysis of corrective measure technologies. The Permittee shall rely on engineering practice to determine which of the identified technologies appear most suitable for the site. Technologies can be combined to form the overall corrective action alternative or alternatives. The alternative or alternatives developed should represent a workable number of option(s) that each appear to adequately address all site problems and corrective action objectives. Each alternative may consist of an individual technology or a combination of technologies. The Permittee shall document the reasons for excluding technologies.

TASK II: EVALUATION OF THE CORRECTIVE MEASURE ALTERNATIVE OR ALTERNATIVES

The Permittee shall describe each corrective measure alternative that passes through the Initial Screening in Task I and evaluate each corrective measure alternative and its components. The evaluation shall be based on technical, environmental, human health and institutional concerns. The Permittee shall also develop cost estimates of each corrective measures.

A. Technical/Environmental/Human Health/Institutional

The Permittee shall provide a description of each corrective measure alternative which includes but is not limited to the following: preliminary process flow sheets; preliminary sizing and type of construction for buildings and structures; and rough quantities of utilities required. The Permittee shall evaluate each alternative in the four following areas:

1. Technical:

The Permittee shall evaluate each corrective measure alternative based on performance, reliability, implementability and safety.

- a. The Permittee shall evaluate performance based on the effectiveness and useful life of the corrective measure:

- (1) Effectiveness shall be evaluated in terms of the ability to perform intended functions, such as containment, diversion, removal, destruction, or treatment. The effectiveness of each corrective measure shall be determined either through design specifications or by performance evaluation. Any specific waste or site characteristics which could potentially impede effectiveness shall be considered. The evaluation shall also consider the effectiveness of combinations of technologies; and
 - (2) Useful life is defined as the length of time the level of effectiveness can be maintained. Most corrective measure technologies, with the exception of destruction, deteriorate with them. Often, deterioration can be slowed through proper system operation and maintenance, but the technology eventually may require replacement. Each corrective measure shall be evaluated in terms of the projected service lives of its component technologies. Resource availability in the future life of the technology, as well as appropriateness of the technologies, must be considered in estimating the useful life of the project.
- b. The Permittee shall provide information on the reliability of each corrective measure including their operation and maintenance requirements and their demonstrated reliability:
- (1) ~~Operation and maintenance requirements include the frequency and complexity of necessary operation and maintenance. Technologies requiring frequent or complex operation and maintenance activities should be regarded as less reliable than technologies requiring little or straight forward operation and maintenance. The availability of labor and materials to meet these requirements shall also be considered; and~~
 - (2) Demonstrated and expected reliability is a way of measuring the risk and effect of failure. The Permittee should evaluate whether the technologies have been used effectively under analogous conditions; whether the combination of technologies have been used together effectively; whether failure of any one technology has an immediate impact on receptors; and whether the corrective measure has the flexibility to deal with uncontrollable changes at the site.
- c. The Permittee shall describe the implementability of each corrective measure including the relative ease of installation (constructability) and the time required to achieve a given level of response:

- (1) Constructability is determined by conditions both internal and external to the facility conditions and include such items as location of underground utilities, depth to water table, heterogeneity of subsurface materials, and location of the facility (i.e., remote location vs. a congested urban area). The Permittee shall evaluate what measures can be taken to facilitate construction under these conditions. External factors which affect implementation include the need for special permits or agreements, equipment availability, and the location of suitable off-site treatment or disposal facilities; and
 - (2) Time has two components that shall be addressed: the time it takes to implement a corrective measure and the time it takes to actually see beneficial results. Beneficial results are defined as the reduction of contaminants to some acceptable, pre-established level.
- d. The Permittee shall evaluate each corrective measure alternative with regard to safety. This evaluation shall include threats to the safety of nearby communities and environments as well as those to workers during implementation. Factors to consider include fire, explosion, and exposure to hazardous substances.

2. Environmental:

The Permittee shall perform an Environmental Assessment for each alternative. The Environmental Assessment shall focus on the facility conditions and pathways of contamination actually addressed by each alternative. The Environmental Assessment for each alternative will include, at a minimum, an evaluation of: the short and long-term beneficial and adverse effects of the response alternative; any adverse effects on environmentally sensitive areas; and an analysis of measures to mitigate adverse effects.

3. Human Health:

The Permittee shall assess each alternative in terms of the extent to which it mitigates short and long-term potential exposure to any residual contamination and protects human health both during and after implementation of the corrective measure. The assessment will describe the levels and characterizations of contaminants on-site, potential exposure routes, and potentially affected population. Each alternative will be evaluated to determine the level of exposure to contaminants and the reduction over time. For management of mitigation measures, the relative reduction of impact will be determined by comparing residual levels of each alternative with existing criteria, standards, or guidelines acceptable to EPA.

4. Institutional:

The Permittee shall assess relevant institutional needs for each alternative. Specifically, the effects of Federal, state and local environmental and public health standards, regulations, guidance, advisories, ordinances, or community relations on the design, operation, and timing of each alternative shall be assessed.

TASK III. JUSTIFICATION AND RECOMMENDATION OF THE CORRECT MEASURE OR MEASURES

The Permittee shall justify and recommend a corrective measure alternative using technical, human health, and environmental criteria. This recommendation shall include summary tables which allow the alternative or alternatives to be understood easily. Tradeoffs among health risks, environmental effects and other pertinent factors shall be highlighted. At a minimum, the following criteria will be used to justify the final recommended corrective measure or measures:

A. Technical

1. Performance - corrective measure or measures which are most effective at performing their intended functions and maintaining the performance over extended period so f time will be given preference;
2. Reliability - corrective measure or measures which do not require frequent or complex operation and maintenance activities and that have proven effective under waste and facility conditions similar to those anticipated will be given preference;
3. Implementability - corrective measure or measures which can be constructed and operated to reduce levels of contamination to attain or exceed applicable standards in the shortest period of time will be preferred; and
4. Safety - corrective measure or measures which pose the least threat to the safety of nearby residents and environments as well as workers during implementation will be preferred.

B. Human Health

The corrective measure or measures must comply with existing U.S. EPA criteria, standards, or guidelines for the protection of human health. Corrective measures which provide the minimum level of exposure to contaminants and the maximum reduction in exposure with time are preferred.

C. Environmental

The corrective measure or measures posing the lest adverse impact or greatest improvement over the shortest period of time on the environment will be favored.

TASK IV: REPORTS

The Permittee shall prepare a Corrective Measure Study Report presenting the results of Tasks I through III and recommending a corrective measure alternative.

A. Progress Reports

The Permittee shall at a minimum provide the Regional Administrator and the Pennsylvania Department of Environmental resources, Bureau of Waste Management with signed, monthly progress reports containing:

1. A description and estimate of the percentage of the CMS completed;
2. Summaries of all findings;
3. Summaries of all changes made in the CMS during the reporting period;
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 to rectify problems;
7. Changes in personnel during reporting period;
8. Projected work for the next reporting period; and
9. Copies of daily reports, inspection reports, laboratory/monitoring data, etc.

B. Draft Corrective Measure Study Report

The Report shall at a minimum include:

1. A description of the facility, including at a minimum, site topographic map & preliminary layouts.
2. A summary of the corrective measure or measures:
 - a. Description of the corrective measure or measures and rationale for selection;
 - b. Performance expectations;
 - c. Preliminary design criteria and rationale;

- d. General operation and maintenance requirements; and
 - e. Long-term monitoring requirements.
- 3. A summary of the Remedial Investigation and impact on the selected corrective measure or measures:
 - a. Field studies (groundwater, surface water, soil, air); and
 - b. Laboratory studies (bench scale, pick scale).
- 4. Design and Implementation Precautions:
 - a. Special technical problems;
 - b. Additional engineering data required;
 - c. Permits and regulatory requirements;
 - d. Access, easements, right-of-way;
 - e. Health and safety requirements; and
 - f. Community relations activities.
- 5. Schedules:
 - a. Project schedule (design, construction, operation).

C. Final Corrective Measure Study Report

The Permittee shall finalize the Corrective Measure Study Report incorporating comments received from EPA on the Draft Corrective Measure Study Report.

D. Schedule for Report Submissions

The Permittee shall provide a proposed schedule for submittal of the Draft Corrective Measure Study Report and Final Corrective Measure Study Report in the work plan for the Corrective Measure Study. Upon approval of this proposed schedule by the Regional Administrator or an alternative schedule as determined by the Regional Administrator, the Permittee shall provide the Draft and Final Corrective Measure Study Reports to the Regional Administrator and the Pennsylvania Department of Environmental Resources, Bureau of Waste Management under the approved schedule. Monthly progress reports shall be submitted to the Regional Administrator and the Pennsylvania Department of Environmental Resources, Bureau of Waste Management, with the first report due 30 days after approval by the Regional Administrator of a schedule for report submissions.

ATTACHMENT F

TABLE 1

EXAMPLES OF CONCENTRATIONS MEETING CRITERIA FOR
ACTION LEVELS [SOURCE: RCRA 3004(u)
CORRECTIVE ACTION RULE, DRAFT,
MAY 1988]

CONSTITUENT NAME	CLASS ²	AIR (ug/m ³)	WATER (mg/L)	SOILS (mg/kg)
1,1,1-Trichloroethane	S	(6)	*	1.5E+03
1,1,2,2-Tetrachloroethane	C	1.8E-01	1.8E-03	1.8E+01
1,1,2-Trichloroethane	C	6.1E-01	6.1E-03	6.1E+01
1,1-Dichloroethylene	C	2.9E-02	*	5.8E+00
1,2,3-Trichloropropane	S	3.5E+00	2.1E-01	1.0E+02
1,2,4,5-Tetrachlorobenzene	S	1.0E+00	1.0E-02	5.1E+00
1,2,4-Trichlorobenzene	S	(6)	7.0E-01	3.4E+03
1,2-Dichloroethane	B	3.8E-02	*	3.8E+00
1,2-Diphenylhydrazine	B	4.4E-03	4.4E-05	4.4E-01
1,3-Dichloropropene	B	1.9E-02	1.9E-04	1.9E+00
2,3,4,6-Tetrachlorophenol	S	1.0E+02	3.5E-01	1.7E+02
2,4,5-Trichlorophenol	S	3.5E+02	*	1.7E+03
2,4,6-Trichlorophenol	B	1.7E-01	1.7E-03	1.8E+01
2,4-Dichlorophenol	S	1.0E+01	1.0E-01	5.1E+01
2,4-Dichlorophenoxyacetic acid	S	(5)	*	1.7E+02
2,4-Dinitrophenol	S	7.0E+00	7.0E-02	3.4E+01
Acetone	S	3.5E+02	3.5E+00	1.7E+03
Acetonitrile	S	(6)	2.1E-01	1.0E+02
Acrylonitrile	B	1.5E-02	6.5E-05	6.5E-01
Aldicarb	S	4.5E+00	4.5E-02	2.2E+01
Aldrin	B	2.1E-04	2.1E-06	2.1E-02
Allyl alcohol	S	1.7E+01	1.7E-01	8.5E+01
Aluminum phosphide	S	(5)	1.4E-02	6.8E+00
Aniline	C	(5)	1.3E-02	1.3E+02
Antimony	S	(6)	1.4E-02	6.8E+00
Barium	S	(5)	*	8.5E+02
Barium cyanide	S	2.4E+02	2.4E+00	1.25+03
Benzidine	A	1.5E-05	1.5E-07	1.5E-03
Beryllium	B/S	4.2E-04	1.7E-01	8.5E+01
Bis(2-ethylhexyl)phthalate	S	7.0E+01	7.0E-01	3.4E+02
Bis(chloroethyl)ether	B	3.2E-03	3.2E-05	3.2E-01
Bromodichloromethane	S	7.0E+01	7.0E-01	3.4E+02
Bromoform	S	7.0E+01	7.0E-01	3.4E+02
Bromomethane	S	(6)	1.4E-02	6.8E+00
Cadmium	B/S	4.5E-04	*	(3)

* MCL available; see Table 2.

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MAY 1988]

CONSTITUENT NAME	CLASS ²	AIR (ug/m ³)	WATER (mg/L)	SOILS (mg/kg)
Calcium cyanide	S	(5)	1.4E+00	6.8E+01
Carbon disulfide	S	(6)	3.5E+00	1.7E+03
Carbon tetrachloride	B	2.7E-02	*	2.7E+00
Chlordane	B	2.7E-03	2.7E-05	2.7E-01
Chlorine cyanide	S	1.7E+02	1.7E+00	8.5E+02
Chlorobenzene	S	(6)	1.0E+00	5.1E+02
Chloroform	B	4.3E-02	5.7E-03	5.7E+01
Chromium (VI)	A/S	8.5E-05	*	8.5E+01
Copper cyanide	A	(5)	2.4E+00	1.2E+03
Cresols	S	(5)	1.7E+00	8.5E+02
Cyanide	S	(5)	7.0E-01	3.4E+02
Cyanogen	S	(5)	1.4E+00	6.8E+02
DDD	B	1.5E-02	1.5E-04	1.5E+00
DDE	B	1.0E-02	1.0E-04	1.0E+00
DDT	B	1.0E-02	1.0E-04	1.0E+00
Dibutyl phthalate	S	(5)	3.5E+00	1.7E+03
Dibutyl nitrosamine	B	6.5E-04	6.5E-06	6.5E-02
Dichlorodifluoromethane	S	(5)	7.0E+00	3.4E+03
Dieldrin	B	2.2E-04	2.2E-06	2.2E-02
Diethyl phthalate	S	(5)	2.8E+01	1.4E+04
Diethylnitrosamine	B	2.3E-05	2.3E-07	2.3E-03
Dimethoate	S	7.0E+01	7.0E-01	3.4E+02
Dimethylnitrosamine	B	6.9E-05	6.9E-07	6.9E-03
Disulfoton	S	1.4E-01	1.4E-03	6.8E-01
Endosulfan	S	1.7E-01	1.7E-03	8.5E-01
Endothall	S	(5)	7.0E-01	3.4E+02
Epichlorohydrin	B	7.3E-01	3.5E-03	3.4E-01
Ethylbenzene	S	3.5E+02	3.5E+00	1.7E+03
Ethylene dibromide	B	4.6E-03	5.0E-07	5.0E-03
Formic acid	S	(5)	7.0E+01	3.4E+04
Heptachlor	B	7.8E-04	7.8E-06	7.8E-02
Heptachlor epoxide	B	3.8E-04	3.8E-06	3.8E-02
Hexachlorodibenzo-p-dioxin	B	5.6E-07	1.0E-08	5.6E-05
Hexachlorobutadiene	C	4.5E-01	4.5E-03	3.4E+01
Hexachlorocyclohexane-alpha	B	5.6E-04	5.6E-06	5.6E-02

* MCL available; see Table 2.

TABLE 1

EXAMPLES OF CONCENTRATIONS MEETING CRITERIA FOR
ACTION LEVELS [SOURCE: RCRA 3004(u)]
CORRECTIVE ACTION RULE, DRAFT,
MAY 1988]

CONSTITUENT NAME	CLASS ²	AIR (ug/m ³)	WATER (mg/L)	SOILS (mg/kg)
Hexachlorocyclohexane-beta	B	1.9E-03	1.9E-05	1.9E-01
Hexachlorocyclopentadiene	S	(6)	2.4E-01	1.2E+02
Hexachloroethane	C	2.5E+00	2.5E-02	2.5E+02
Hydrazine	B	3.5E-04	1.2E-05	1.2E-01
Hydrogen cyanide	S	(5)	7.0E-01	3.4E+02
Hydrogen sulfide	S	(5)	1.0E-01	5.1E+01
Isobutyl alcohol	S	1.0E+03	1.0E+01	5.1E+03
Isophorone	S	7.0E+02	5.2E+00	2.5E+03
Lindane (gamma-hexachlorocyclohexane)	B	2.7E-03	*	2.7E-01
Meleic hydrazide	S	(5)	1.7E+01	8.5E+03
Methomyl	S	(5)	8.7E-01	4.2E+02
Methyl ethyl ketone	S	(6)	1.7E+00	8.5E+02
Methyl isobutyl ketone	S	(6)	1.7E+00	8.5E+02
Methyl parathion	S	(6)	8.7E-03	4.2E+00
Methylene chloride	B	2.5E-01	4.7E-03	4.7E+01
m-Phenylenediamine	S	(5)	2.1E-01	1.0E+02
Nickel refinery dust	A	4.2E-03	(4)	(4)
Nitric oxide	S	3.5E+02	3.5E+00	1.7E+03
Nitrobenzene	S	(6)	1.7E-02	8.5E+00
Nitrogen dioxide	S	1.0E+00	3.5E+01	1.7E+04
N-nitrosodiethanolamine	B	1.2E-03	1.2E-05	1.3E-01
N-nitrosodiphenylamine	B	7.1E-01	7.1E-03	7.1E+01
N-nitrosodi-N-propylamine	B	5.0E-04	5.0E-06	5.0E-02
N-nitrosopyrrolidine	B	1.7E-03	1.7E-05	1.7E-01
N-nitroso-N-methylethylamine	B	1.6E-04	1.6E-06	1.6E-02
Parathion	C	(5)	1.0E-02	5.1E+00
Pentachlorobenzene	S	2.8E+00	2.8E-02	1.4E+01
Pentachloronitrobenzene	C/S	1.4E-01	1.0E-01	5.1E-01
Pentachlorophenol	S	1.0E+02	1.0E+00	5.1E+02
Phenol	S	(5)	1.4E+00	6.8E+02
Phenyl mercuric acetate	S	(5)	2.8E-03	1.4E+00
Phosphine	S	(5)	1.0E-02	5.1E+00
Polychlorinated biphenyls	B	(5)	4.5E-06	4.5E-02
Potassium cyanide	S	(5)	1.7E+00	8.5E+02
Potassium silver cyanide	S	(5)	7.0E+00	3.4E+03

* MCL available; see Table 2.

TABLE 1

EXAMPLES OF CONCENTRATIONS MEETING CRITERIA FOR
ACTION LEVELS [SOURCE: RCRA 3004(u)
CORRECTIVE ACTION RULE, DRAFT,
MAY 1988]

CONSTITUENT NAME	CLASS ²	AIR (ug/m ³)	WATER (mg/L)	SOILS (mg/kg)
Pronomide (kerb)	C/S	2.2E+00	2.6E+00	1.3E+03
Pyridine	S	(6)	3.5E-02	1.7E+01
Selenious acid	S	(5)	1.0E-01	5.1E+01
Selenourea	S	(5)	1.7E-01	8.5E+01
Silver	S	(5)	*	5.1E+01
Silver cyanide	S	(5)	3.5E+00	1.7E+03
Sodium cyanide	S	(5)	1.4E+00	6.8E+02
Strychnine	S	(5)	1.0E-02	5.1E+00
Styrene	B/S	1.8E+00	7.0E+00	3.4E+03
Tetrachloroethylene	C	1.4E-01	6.9E-03	6.9E+01
Tetraethyl lead	S	3.5E-04	3.5E-06	1.7E-03
Thallic oxide	S	1.4E+00	1.4E-02	6.8E+00
Thallium acetate	S	1.7E+00	1.7E-02	8.5E+00
Thallium carbonate	S	1.4E+00	1.4E-02	6.8E+00
Thallium chloride	S	1.4E+00	1.4E-02	6.8E+00
Thallium nitrate	S	1.7E+00	1.7E-02	8.5E+00
Thallium (I) sulfate	S	1.0E+00	1.7E-02	8.5E+00
Thiram	S	(5)	1.7E-01	8.5E+01
Toluene	S	(6)	1.0E+01	5.1E+03
Toxaphene	B	3.2E-03	*	3.2E-01
Trichloroethylene	B	2.7E-01	*	3.2E+01
Trichloromonofluoromethane	S	(5)	1.0E+01	5.1E+03
Vanadium pentoxide	S	(5)	7.0E-01	3.4E+02
Warfarin	S	(6)	1.0E+02	5.1E+00
Xylenes	S	7.0E+03	7.0E+01	3.4E+04
Zinc cyanide	S	(5)	1.7E+00	8.5E+02
Zinc phosphide	S	(5)	1.0E-02	5.1E+00

* MCL available; see Table 2.

TABLE 1

EXAMPLES OF CONCENTRATIONS MEETING CRITERIA FOR
ACTION LEVELS [SOURCE: RCRA 3004(u)
CORRECTIVE ACTION RULE, DRAFT,
MAY 1988]

- 1 Concentrations derived using exposure assumptions in Table 3 and reference doses for systemic toxicant and verified risk-specific doses at 10^{-6} for class A and B carcinogens and 10^{-5} for class C carcinogens.
- 2 A, B and C represents class A, B and C carcinogens, respectively; S represents systemic toxicant. Constituents that are inhalation carcinogens and oral systemic toxicants are designated, for example, as B/S.
- 3 Under review.
- 4 Not applicable.
- 5 Inhalation reference dose or carcinogenic potency factor not available at this time and extrapolation from oral values to obtain a value in air has been determined to be inappropriate.
- 6 Constituent has an unverified inhalation RfD which is currently available.

* MCL available; see Table 2.

TABLE 2
MAXIMUM CONTAMINANT LEVELS
[SOURCE: RCRA 3004(u)
CORRECTIVE ACTION RULE, DRAFT, MAY 1988]

Constituents (ppm)	MCL
Arsenic	0.05
Barium	1
Benzene	0.005
Cadmium	0.01
Carbon tetrachloride	0.005
Chromium VI	0.05
p-dichlorobenzene	0.075
1,2-Dichloroethane	0.005
1,1-Dichloroethylene	0.007
2,4-D	0.1
2,4,5-TP	0.01
Endrin	0.0002
Fluoride	4
Lead	0.05
Lindane	0.004
Mercury	0.002
Methoxychlor	0.1
Nitrate	10
Selenium	0.01
Silver	0.05
Toxaphene	0.005
1,1,1-Trichloroethane	0.2
Trichloroethylene	0.005
Vinyl chloride	0.002

TABLE 3

RECOMMENDED EXPOSURE ASSUMPTIONS FOR USE IN DERIVING ACTION
LEVELS [§§264.521(a)(2);(b);(c)(3); and (d)]
[SOURCE: RCRA 3004(u)
CORRECTIVE ACTION RULE, DRAFT, MAY 1988]

1. In deriving action levels for hazardous constituents in groundwater, assume a water intake of 2 liters/day for 70 kg adult/70 year lifetime exposure period.
2. In deriving action levels for hazardous constituents in air, assume air intake of 20 cubic meters/day for 70 kg adult/70 year lifetime exposure period.
3. In deriving action levels for hazardous constituents in soil, which are known or suspected to be carcinogens, assume soil intake of 0.2 gram/day for 70 kg adult/70 year lifetime exposure period.
4. In deriving action levels for hazardous constituents in soil, other than those which are known for suspected to be carcinogens, assume soil intake of 1 gram/day for 17 kg child/5 year exposure period (age 1-6).*
5. In deriving action levels for hazardous constituents in surface water designated by the State for use as a drinking water source, assume a water intake of 2 liters/day for 70 kg adult/70 year lifetime exposure period, unless intake of aquatic organisms is also of concern.

* Not to be averaged over a 70-year lifetime.