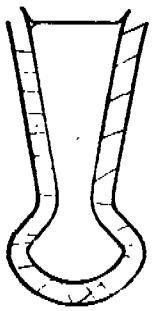

HAZARDOUS WASTE

PERMIT
CHECKLIST
for

DOW CHEMICAL USA, LOUISIANA DIVISION

WEST BATON ROUGE AND IBERVILLE PARISHES

Louisiana Highway 1
Plaquemine, Louisiana 70765

LAD008187080

I. PERMIT PREAMBLE

This permit is issued to Dow Chemical USA, Louisiana Division, hereinafter referred to as the Permittee, by the Louisiana Department of Environmental Quality (LDEQ) under authority of the Louisiana Hazardous Waste Control Law. R.S. 30:1131 et seq., and the regulations adopted thereunder and by the U.S. Environmental Protection Agency under the authority of the 1984 Hazardous and Solid Waste Amendments to RCRA (HSWA).

For the purposes of this permit, "administrative authority" shall mean the Secretary of the Department of Environmental Quality, or his/her designee or, in the case of HSWA provisions (Section IX) for which the State is not authorized, the U.S. Environmental Protection Agency shall be the administrative authority.

This permit is based on information submitted in the permit application, and all subsequent amendments, and on the applicant's certification that such information is accurate and that all facilities were or will be constructed and operated as specified in the application.

This permit is conditioned upon full compliance with all applicable provisions of the Louisiana Hazardous Waste Control Law.

All definitions contained in this permit shall have the meaning as defined in Louisiana Administrative Code (LAC) unless otherwise stated herein.

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II. GENERAL PERMIT CONDITIONS

A. DURATION OF PERMIT

This permit is effective as of the date indicated on the accompanying signature page and shall remain in effect for a period of ten (10) years from the effective date, unless suspended, modified, revoked and reissued or terminated for just cause.

B. EFFECT OF PERMIT

The Permittee is allowed to store, treat, or dispose of hazardous waste in accordance with the conditions of this permit. Any storage, treatment or disposal of hazardous waste not authorized by statute, regulation or this permit is prohibited. Compliance with this permit constitutes compliance, for purposes of enforcement, with Subtitle C of RCRA and Part VII of the Louisiana Environmental Quality Act (Act). However, compliance with the terms of this permit does not constitute a defense to any order issued or any action brought under Section 3013 or Section 7003 or RCRA, or under Section 106(a) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (42 U.S.C. 9606 (a)).

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, any invasion of other private rights, or any infringement of State or local law or regulations.

C. PERMIT ACTIONS

Any inaccuracies found in the permit application may be cause for revocation or modification of this permit. The Permittee must inform

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the administrative authority of any deviation from, or changes in, or inaccuracies in the information in the permit application.

The administrative authority may also suspend, modify, revoke and reissue, or terminate for cause as specified in 40 CFR 270.41, 270.42, 270.43 or LAC 33:V.309.F or 323. The administrative authority may modify the permit when the standards or regulations on which the permit was based have been changed by promulgation of amended standards or regulations, or by judicial decision after the permit was issued. The filing of a request for 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.

D. SEVERABILITY

The conditions 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.

E. 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 may be authorized by an emergency permit.

Any permit noncompliance, other than noncompliance authorized by an emergency permit (LAC

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33:V.701), constitutes a violation of the LAC and the Act and is grounds for enforcement action which may include permit termination, permit revocation and reissuance, permit modification, or denial of a permit renewal application.

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 reapply for the permit as required by the LAC.

3. Permit Extension.

This permit and all conditions herein will remain in effect beyond the permit's expiration date until the administrative authority issues a final decision on the re-application, provided the Permittee has submitted a timely, complete new permit application as provided in LAC 33:V.303.N.

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.

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5. Duty to Mitigate.

The Permittee shall immediately take all reasonable steps to minimize

or correct any adverse impact on the environment resulting from noncompliance with this permit.

6. Proper Operation and Maintenance.

The Permittee shall at all times properly operate

and maintain all facilities

and systems of treatment

and control

(and related appurtenances) that 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 staffing

and training,

and adequate laboratory

and process controls,

including appropriate quality assurance procedures.

This provision requires the operation of back-up or auxiliary facilities

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or similar systems only when necessary to achieve compliance with the conditions of the permit.

7. Duty to Provide Information.

The Permittee shall furnish to the administrative authority, within a reasonable time, any information which the administrative authority 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 administrative authority, upon request, copies of records required by this permit.

8. Inspection and Entry.

The Permittee shall allow the administrative authority or an authorized representative, upon the presentation of credentials and other documents as may be required by law, to:

a) Enter upon the Permittee's premises where a regulated activity is located or conducted, or where records must be maintained under the conditions of this permit;

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

c) Inspect, at reasonable times, any facilities, equipment (including monitoring and control

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equipment), practices, or operations regulated or required under this permit; and

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

9. Monitoring and Records.

a) Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity. The method used to obtain a representative sample of the waste to be analyzed must be the appropriate method from Appendix I of 40 CFR Part 261. Laboratory methods must be those specified in Test Methods for Evaluating Solid Waste: Physical/Chemical Methods, SW-846, 1982, as revised; Standard Methods for the Examination of Water and Wastewater, Sixteenth Edition, 1985, as revised; Manual of Ground Water Quality Sampling Procedures, 1981, EPA-600/2-81-160, as revised; Procedures Manual for Ground Water Monitoring at Solid Waste Disposal Facilities, 1977, EPA-530/SW-611, as revised; or an equivalent method as specified in the attached Waste Analysis Plan (Attachment I).

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b) Records of monitoring information shall include:			
i) The date, exact place, and time of sampling or measurements;			
ii) The individual(s) who performed the sampling or measurements;			
iii) The date(s) analyses were performed;			
iv) The individual(s) who performed the analysis;			
v) The analytical techniques or methods used; and			
(vi) The results of such analyses.			

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10. Retention of Records. 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 the post-closure care period. The Permittee shall retain records of all other monitoring information, including all calibration and maintenance records and all original strip chart recordings of continuous monitoring instrumentation, and copies of all reports and records required by this permit, for a period of at least three (3) years from the date of the sample, measurement, report or record except where otherwise required by this permit, or by order of the administrative authority. The Permittee shall, for the life of the permit, maintain records of all data used to complete the application for this permit and any supplemental information submitted under the Hazardous Waste program of Louisiana. These periods may be extended by request of the administrative authority at any time and are automatically extended during the course of any			

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unresolved enforcement action regarding this facility.

11. Notices of Planned Physical Facility Changes.

The Permittee shall give notice to the administrative authority, as soon as possible, of any planned physical alterations or additions to the permitted facility, in accordance with LAC 33:V.309.L.1.

12. Physical Facility after Modification or Construction.

For a new facility, the permittee may not treat, store, or dispose of hazardous waste; and for a facility being modified, the permittee may not treat, store, or dispose of hazardous waste in the modified portion of the facility until:

a) The Permittee has submitted to the administrative authority, by certified mail or hand delivery, a letter signed by the permittee and a registered professional engineer stating that the facility has been constructed or modified in compliance with the permit; and

b) The administrative authority has inspected the modified facility and finds it is in compliance with the conditions of the permit and issues an order to proceed. The permittee

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may then commence treatment and storage of hazardous waste.

13. Anticipated Noncompliance.

The Permittee shall give advance notice to the administrative authority of any planned changes in the permitted facility or activity that may result in noncompliance with permit requirements.

14. Transfer of Permits.

This permit may be transferred to a new owner or operator only if it is modified or revoked and reissued pursuant to LAC 33:V.309.L.4, 321.B, 321.C.4, and 1531. Before transferring ownership or operation of the facility during the post-closure care period, the Permittee shall notify the new owner or operator in writing of all the requirements of the LAC.

15. Compliance Schedules.

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.

16. Noncompliance Reporting.

The Permittee shall report orally within twenty-four (24) hours any

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noncompliance with the permit that may endanger human health or the environment, except where more immediate notification is required by LAC 33:V.I Chapter 39 the "Notification Regulations and Procedures for Unauthorized Discharges" dated November 19, 1985 as amended.			
This report shall include the following:			
a) Information concerning the release of any hazardous waste that may endanger public drinking water supplies; and			
b) Information concerning the release or discharge of any hazardous waste, or of a fire or explosion at the facility, that could threaten the environment or human health outside the facility.			
The description of the occurrence and its cause shall include:			
i) Name, address, and telephone number of the owner or operator;			
ii) Name, address, and telephone number of the facility;			
iii) Date,			

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time,

type of incident;

iv) Name

and quantity of materials involved;

v) The extent of injuries, if any;

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

vii) Estimated quantity

and disposition of recovered material that resulted from the incident.

17. Follow-up Written Report of Noncompliance.

The Permittee shall provide a written submission within five (5) days after the time the Permittee becomes aware of any noncompliance which may endanger human health or the environment. However, where more immediate submission is required by the "Notification Regulations and Procedures for Unauthorized Discharges" dated November 19, 1985, the report shall be submitted in accordance with those regulations.

The written submission shall contain a

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description of the noncompliance and its cause; the periods of noncompliance (including exact dates and times); whether the noncompliance has been corrected; and if not, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance. The Permittee need not comply with the five (5) day written notice requirement if the administrative authority waives the requirement and the Permittee submits a written report within fifteen (15) days after the time the Permittee becomes aware of the circumstances.			
18. <u>Other Noncompliance.</u> The Permittee shall report all other instances of noncompliance not otherwise required to be reported above, at the time required monitoring reports are submitted. The reports shall contain the information listed in Section II.E.16 above.			
19. <u>Other Information.</u>			

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Whenever the Permittee becomes aware that it failed to submit any relevant facts in the permit application, or that it submitted incorrect information in a permit application, or in any report to the administrative authority, the Permittee shall promptly submit such facts or information.

20. Signatory Requirement.

All applications, reports or other information submitted to the administrative authority shall be signed and certified according to LAC 33:V.507, 509, 511 and 513.

21. Schedule of Compliance.

a) The proposed leak detection system for the Northwest Landfill, as approved by the administrative authority (Enclosure) shall be installed within one-hundred (180) days after issuance of this permit and

will be identified as LD-2, and LD-3.

All wells must be maintained so that surface infiltration is prohibited and

ground water samples are generated with a water quality of five (5) or less nephelometric turbidity units (N.T.U.).

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If turbidity in ground water samples are attributable to natural hydrogeological conditions peculiar to the screened zone, and a water clarify of five (5) units is not achievable, the Permittee must demonstrate to the satisfaction of the administrative authority that turbidity of the water samples will not compromise the validity of the analyses.			
b) The Permittee must have an approved assessment plan for the chloride plume in the Chlorine Plant area on file with the administrative authority within sixty (60) days after the issuance of this permit, and implement a corrective action or mitigation program within sixty (60) days after conclusion of the assessment phase. administrative authority, as required by LAC:33.V.105H.			
c) Within thirty (30) days of the effective date of this permit, the Permittee shall resubmit the Waste Analysis Plan (WAP) with Exhibits 45, 4, NWLF-1 and NWLF-1. The exhibits must list the specific SW-846 methods to be used or the permittee shall petition the administrative authority as required by LAC:33:V.105H. This			

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resubmitted Waste Analysis Plan must receive approval from the administrative authority before being incorporated in the Permit as Attachment 1.

In addition, this Waste Analysis Plan shall be revised to include a list of the waste which will not be sampled and analyzed.

Reasons for omitting these wastes from sampling and analysis must be given.

d) The Permittee shall adhere to the conditions and recording of incinerator monitoring as continued in Attachment 10 "Compliance Schedule for Incinerator Monitoring."

22. Updated Documents To Be Submitted Prior To Operation.

a) Within thirty (30) days of the effective date of this permit, the Permittee shall submit updated financial liability coverage documents.

b) Within forty-five (45) days of the effective date of this permit, the Permittee shall submit documentation of acceptance or denial of arrangements with local authorities.

23. Documents To Be Maintained at Facility Site

a) The Permittee shall maintain at the facility, until closure is completed

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and certified by an independent registered professional engineer, the following documents and amendments, revisions, and modifications to these documents. Any revision or changes shall be submitted with the annual report.			
i) Waste analysis plan submitted in accordance with LAC 33:V.1519 (see Attachment 1).			
ii) CContingency Plan submitted in accordance with LAC 33:V.1513 (see Attachment 3).			
iii) Closure plan submitted in accordance with LAC 33:V.3511 (see Attachment 5).			
iv) Any post-closure care requirements that may be required initially or through permit modifications in accordance with LAC 33:V.3523.			
v) Cost estimate for facility closure care submitted in accordance with LAC 33:V.3705 (see Attachment 6).			
vi) Any post-closure cost estimate that may be required initially or through permit modifications in accordance with LAC 33:V.3709.			
vii) Training plan and the training records required by LAC 33:V.1515 (see Attachment 2).			

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viii) Operating record required by LAC 33:V.1529 and 2115.D), and detailed in Attachment 7.

ix) Inspection schedules developed in accordance with LAC 33:V.517.G and 1509.B (see Attachment 8).

b) All proposed amendments, revisions and modifications to any plan or cost estimates required by this permit shall be submitted to the administrative authority for approval.

24. Annual Report.

An annual report must be submitted covering all hazardous waste units and their activities during the previous calendar year as required by LAC 33:V.1529.D.

25. Manifest

The Permittee shall report manifest discrepancy reports and unmanifested waste as per LAC 33:V.309.L.8 and 9.

26. Emissions.

Emissions from any hazardous waste facility must not violate the Louisiana Air Quality Regulations.

27. Waste Discharges.

Waste discharges from any hazardous waste facility must not violate the

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Louisiana Water Quality Regulations.			
28. Non-Listed Hazardous Waste Facilities. This permit is issued for those hazardous waste facilities listed in Section IV (Permitted Facilities). If the Permittee determines that an unpermitted hazardous waste facility exists, the permittee must immediately notify the administrative authority in accordance with Section II.E.19 of the General Permit Conditions.			
29. Confidentiality. Information submitted in the permit application as "Confidential" shall be acted upon according to LAC 33:V.319.			
30. Compliance With Land Disposal Restrictions The Permittee shall comply with those land disposal restrictions set forth in La. R.S. 30:1141:1 and all regulations promulgated thereunder.			

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III. GENERAL FACILITY CONDITIONS

A. DESIGN AND OPERATION OF ALL FACILITIES

1. The Permittee shall maintain and operate all facilities to minimize the possibility of a fire, explosion, or any unauthorized sudden or non-sudden release of hazardous waste or hazardous waste constituents to air, soil, or water that could threaten human health or the environment.

2. The Permittee may receive only those off-site wastes which are listed in Attachment 1, Exhibit 1-Z and

   which are generated:

   - by other Dow Chemical USA subsidiaries or,
   - by a company in which Dow Chemical USA owns a minimum of fifty percent (50%) of the voting stock or,
   - by any governmental entity and as approved by the administrative authority or,
   - When a Dow Chemical USA product was spilled while in transit to a customer and becomes a hazardous waste (as defined in LAC 33:V.109) or,

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- hazardous waste from CERCLA corrective actions where Dow Chemical USA is a Potentially Responsible Party (PRP).

B. GENERAL WASTE ANALYSIS

The Permittee shall follow the procedures described in the Waste Analysis Plan (Attachment 1) and furnish the following updated information.

1. The Permittee shall review the waste analysis plan annually and

report to the administrative authority within thirty (30) days after such review whether any revision is required to stay abreast of changes in EPA methods and/or State regulatory provisions.

The Permittee shall make all necessary revisions within thirty (30) days following its report.

2. Annually, the Permittee shall submit a report, certified as provided for in LAC 33:V.513, reviewing and evaluating the performance of the laboratory QA/QC program.

3. The Permittee shall at a minimum annually recharacterize all hazardous waste streams shipped offsite or

treated and disposed of onsite.

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This recharacterization shall provide a means of detecting changes in concentrations of chemical constituents, appearance of new constituents or variations in physical properties.			
This recharacterization shall include laboratory analyses for components of the waste.			
The results of this recharacterization shall be summarized in the Permittee's Annual Report.			
C. SECURITY			
The Permittee shall comply with the security provisions of LAC 33:V.513 as specified in Attachment 9.			
D. GENERAL INSPECTION REQUIREMENTS			
The Permittee shall follow the inspection schedule in Attachment 10.			
The Permittee shall remedy any deterioration or malfunction discovered by an inspection as required by LAC 33:V.1509.C. Records of inspections shall be kept as required by LAC 33:V.1509.D.			
The inspection schedule shall include the regulatory requirements of LAC 33:V.1905, 2109, and 3119.			
E. PERSONNEL TRAINING			

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	The Permittee shall conduct personnel training as required by LAC 33:V.1515.A. This training program shall follow the outline in Attachment 2.			
	The Permittee shall maintain all training documents and records as required by LAC 33:V.1515.D.			
F.	GENERAL REQUIREMENTS FOR IGNITABLE, REACTIVE, OR I NCOMPATIBLE WASTE			
	The Permittee shall take precautions as required by LAC 33:V.1517 to prevent accidental ignition or reaction of ignitable or reactive wastes.			
G.	LOCATION STANDARDS			
1.	The Permittee has furnished evidence that it is in compliance with seismic standards as required by LAC 33:V.517.T.			
2.	The Permittee shall not place any hazardous waste unit on any portion of the property that lies within the 100 year floodplain (as identified in the Flood Insurance Rating Map) unless such areas are raised above this flood level or other means (e.g., levees) are provided to protect such areas from washouts, overtopping by wave action, soil erosion or other effects of such a flood as required by LAC 33:V.1503.B.3.			

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Such site improvements shall be certified by licensed professional engineers and approved by LDEQ prior to any hazardous waste and/or hazardous waste facilities being placed thereon.			
H. PRECIPITATION RUN ON AND RUN OFF			
The Permittee must provide for the containment and treatment of run-on and run-off resulting from a rainfall of at least twelve (12) inches, occurring during a period of twenty-four hours in conformity with locally available records of a twenty-four (24) hour rainfall as per LAC 33:V.1503.B.2.			
I. HURRICANE EVENTS			
The Permittee shall initiate those applicable portions of the Contingency Plan during a hurricane as well as appropriate actions required by LAC 33:V.1597, 1509, and 1511.			
J. PREPAREDNESS AND PREVENTION			
1. Required Equipment			
At a minimum, the Permittee shall install and maintain the equipment set forth in the Contingency Plan, Attachment 4, as required by LAC 33:V.1511.C.			

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2. Testing and Maintenance of Equipment The Permittee shall test and maintain the equipment specified in the above permit condition to insure its proper operation in time of emergency.			
3. Access to Communications or Alarm Systems The Permittee shall maintain access to the communications or alarm system as required by LAC 33:V.1511.E.1 and 1511.E.2.			
4. Required Aisle Space At a minimum, the Permittee shall maintain adequate aisle space as required by LAC 33:V.1511.F.			

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5. Arrangements with Local Authorities

The Permittee shall document in the annual report that the requirements of LAC 33:V.1511.G have been met.

This documentation shall include those State and Local agencies present and those facilities and operations covered. Documentation of annual written renewal of arrangements with State and Local agencies shall also be included in this report.

K. Contingency Plan

1. Implementation of Plan

The Permittee shall immediately carry out the provisions of the Contingency Plan, Attachment 4, and follow the emergency procedures described by LAC 33:V.1513.F whenever there is a fire, explosion, or release of hazardous waste or hazardous waste constituents that threaten or could threaten human health or the environment.

2. Copies of Plan

The Permittee shall comply with the requirements of LAC 33:V.1513.C.

3. Amendments to Plan

The Permittee shall review and immediately amend, if necessary, the Contingency

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Plan, as required by LAC 33:V.1513.D.

4. Emergency Coordinator

The Permittee shall comply with the requirements of LAC 33:V.1513.E concerning the emergency coordinator.

L. MANIFEST SYSTEM

Use of the Manifest System

The Permittee shall comply with the manifest requirements of LAC 33:V. Chapter 9.

M. RECORDKEEPING AND REPORTING

1. Operating Record

The Permittee shall maintain a written operating record at the facility in accordance with LAC 33:V.1529.A, 1529.B, 1529.C., and Attachment 7.

2. Annual Report

The Permittee shall comply with the annual report requirements of LAC 33:V.1529.D.

N. CLOSURE/POST-CLOSURE

1. The closure plan shall include the following responses by the Permittee to LAC 33:V.1915, 2117, 2521, 3503, 3505, 3507, 3509, 3511, 3513 and 3515.

a) Closure Plan. The Permittee shall close the facility in accordance

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with the closure plan, Attachment 5.			
b) Amendment to Closure Plan. The Permittee shall amend the closure plan where necessary, in accordance with 3511.C. Any modification shall be subject to LAC 33:V.321.			
c) Notification of Closure. The Permittee shall notify the Regional Administrator at least 180 days prior to the date he expects to begin closure.			
d) Time Allowed For Closure. After receiving the final volume of hazardous waste, the Permittee shall treat or remove from the site all hazardous waste in accordance with the schedule specified in the closure plan, Attachment 5. After receiving the final volume of hazardous waste, the Permittee shall complete closure activities in accordance with the schedule specified in the closure plan, Attachment 5.			
e) Disposal or Decontamination of Equipment. The Permittee shall decontaminate (and/or) dispose of all facility equipment in accordance with the closure plan, Attachment 5.			
f) Certification of Closure. The Permittee shall certify that the facility has been closed in accordance with the			

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specifications in the closure plan as required by LAC 33:V.3517.			
g) Inventory at Closure. The Permittee shall be responsible for closure cost based upon the following maximum permitted facility inventories:			

(1) TANKS (14) AND SUMPS (2)

TANK	SERVICE	LOCATION	MAXIMUM PERMITTED CAPACITY GALLONS
T-400	Organic Waste	Vinyl Plant	49,300
T-410	Organic Waste	Vinyl Plant	375
D-13	Organic Waste	Solvents Plant	2,500
D-15	Organic Waste	Solvent Plant	20,000
D-92A	Organic Waste	Solvent Plant	370
D-700	Organzic Waste	Solvent Plant	2,800
D-701	Organic Waste	Solvent Plant	50
T-749	Organic Waste	Solvent Plant	12,000
V-201	Organic Waste	Solvent Plant	32,000
T-130	Organic Waste Water	Environmental Operations	20,000
T-135	Slop Oils/Suspended Solids	Environmental Operations	20,000
T-250	Waste Lubricating Oils	Environmental Operations	20,000
T-255	Flammable Liquids	Environmental Operations	20,000
T-401	Slurry Feed	Environmental Operations	11,300
SU-130	Secondary Containment	Environmental Operations	17,000
SU-265	Secondary Containment	Environmental Operations	22,000

(2) CONTAINER STORAGE (5)

CONTAINER STORAGE AREA	SQUARE FOOTAGE	MAXIMUM VOLUME OF 45 GALLON PACKS	MAXIMUM LARGE CONTAINER GALLONS
1	1,400	11,700	
2	2,100	18,000	
3	4,000	27,000	20,000
4	1,500	13,500	
5	7,750	58,500	20,000
	TOTAL VOLUMES	128,700	40,000

(3) IMPOUNDMENT (1)

	IMPOUNDMENT	LOCATION	MAXIMUM PERMITTED CAPACITY GALLONS
i)	Chlor-Alkali II	Block 35	2,000,000

(4) INCINERATORS (3)

i) Solvents Plant (Liquid - Injection) Incinerator

ii) Vinyl II Plant (Liquid - Injection) Incinerator

iii) Environmental Operations (Rotary-Kiln) Incinerator

(5) LANDFILLS (2)

i)	Northwest Landfill (NWLF)	78.5 acre feet
ii)	Block 80	81.2 acre feet

2. POST-CLOSURE

The Post-Closure Plan shall include responses by the Permittee to LAC 33:V.2521, LAC 33:V. Chapter 35 Subchapter B and is designated as Attachment 5.

a) Inventory of Post-Closure

The Permittee shall be responsible for post-closure cost for the following permitted facilities.

(1) IMPOUNDMENT (1)

IMPOUNDMENT	LOCATION	MAXIMUM PERMITTED CAPACITY GALLONS
Chlor-Alkali II	Block 35	2,000,000

(2) LANDFILLS (2)

i)	Northwest Landfill (NWLF)	78.5 acre f et
ii)	Block 80	81.2 acre feet

b) Amendments to Post-Closure Plan

The Permittee shall amend the Post-Closure Plan when necessary, in accordance with LAC 33:V.3523.D. Any modifications shall be subject to LAC 33:V.321.

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O. COST ESTIMATE FOR FACILITY CLOSURE/POST-CLOSURE

1. The Permittee's must maintain cost estimate for closure of all facilities as required by LAC 33:V.3705.A. (Attachment 6)

2. The Permittee shall maintain and adjust the closure cost estimate for inflation, as specified in LAC 33:V.3705.B, 3705.C, and for other circumstances that increase the cost of closure.

3. The Permittee must adjust the closure cost estimate within thirty (30) days after approval by the administrative authority of any request to modify the closure plan in accordance with LAC 33:V.3705.C. The Permittee shall consider the impact of any inventory and/or process changes on the closure cost estimate.

4. The closure cost estimate must equal the cost of closure at the point in the facility's operating life when the extent and manner of its operation would make closure the most expensive.

   The closure cost estimate shall be based on the maximum permitted inventory of each facility as specified in Section III.O.7 of this permit.

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5. Th Permittee's post-closure cost estimate of all facilities as required by LAC 33:V.3709.A is included in Attachment 6.			
6. The Permittee shall maintain and adjust the post closure cost estimate for inflation, as specified in LAC 33:V.3709.B.			
7. The Permittee must adjust the post-closure cost estimate within thirty (30) days after approval by the administrative authority of any request to modify the Post-Closure Plan in accordance with LAC 33:V.3709.C. The Permittee shall consider the impact of any inventory and/or process changes on the post-closure cost estimate.			
8. The post-closure cost estimate must equal the annual post-closure cost multiplied by the number of years in the post-closure period as specified in LAC 33:V.3521.A.			
9. Any closure/post-closure modifications are subject to LAC 33:V.321.			
P. FINANCIAL ASSURANCE FOR FACILITY CLOSURE			
1. Financial assurance, as required by LAC 33:V.3707 must be established sixty (60) days prior to the date on which waste is first received for treatment, storage, or			

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disposal. The Permittee must also increase financial assurance for closure when required by LAC 33:V.3705.B, and 3705.C.			
2. The Permittee shall have financial assurance for post-closure as required by LAC 33:V.3709. The financial assurance for post-closure shall be established sixty (60) days prior to the date on which any hazardous waste is first received for treatment, storage, or disposal.			
Q. LIABILITY REQUIREMENTS			
1. The Permittee shall have and maintain liability coverage for non-sudden accidental occurrences as specified in the LAC 33:V.3715 in the amounts of $5,000,000 per occurrence and $10,000,000 annual aggregate, exclusive of legal defense costs.			
Upon acceptance of certification of the surface impoundment closures, the administrative authority may consider revisions to the liability coverage requirements as required by LAC 33:V. Chapter 37.			
R. INCAPACITY OF THE PERMITTEE			
The Permittee shall comply with LAC 33:V.3717 whenever bankruptcy is initiated for Permittee or its institutions			

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providing financial assurance. If insurance is used for compliance with LAC 33:V.3715, the Permittee shall immediately notify the administrative authority if the insurance company is placed in receivership.			

IV. PERMITTED FACILITIES

The following facilities are permitted to be used in hazardous waste service:

A. TANKS (14) AND SUMPS (2)

TANK	SERVICE	LOCATION	MAXIMUM PERMITTED CAPACITY GALLONS
T-400	Organic Waste	Vinyl Plant	49,300
T-410	Organic Waste	Vinyl Plant	375
D-13	Organic Waste	Solvents Plant	2,500
D-15	Organic Waste	Solvent Plant	20,000
D-92A	Organic Waste	Solvent Plant	370
D-700	Organic Waste	Solvent Plant	2,800
D-701	Organic Waste	Solvent Plant	50
T-749	Organic Waste	Solvent Plant	12,000
V-201	Organic Waste	Solvent Plant	32,000
T-130	Organic Waste Water	Environmental Operations	20,000
T-135	Slop Oils/Suspended Solids	Environmental Operations	20,000
T-250	Waste Lubricating Oils	Environmental Operations	20,000
T-255	Flammable Liquids	Environmental Operations	20,000
T-401	Slurry Feed	Environmental Operations	11,300
SU-130	Secondary Containment	Environmental Operations	17,000
SU-265	Secondary Containment	Environmental Operations	22,000

B. CONTAINER STORAGE (5)

The following container storage areas are permitt d to store hazardous waste in properly labeled and sealed containers which have been specified for this service and are compatible with the waste being stored.

The location of this facility is in the Environmental Operations (1-200) area of the production complex adjacent to the incinerator.

The container storage is to be conducted in one (1) covered area and four (4) outside curbed areas as indicated below:

CONTAINER STORAGE AREA	SQUARE FOOTAGE	MAXIMUM VOLUME OF 45 GALLON PACKS	MAXIMUM LARGE CONTAINER GALLONS
1	1,400	11,700	
2	2,100	18,000	
3	4,000	27,000	20,000
4	1,500	13,500	
5	7,750	58,500	20,000
	TOTAL VOLUMES	128,700	40,000

C. IMPOUNDMENTS (1)

The Permittee is allowed to utilize the following impoundment for storing hazardous waste until their closure as outlined in the attached closure plan (Attachment 5).

	IMPOUNDMENT	LOCATION	MAXIMUM PERMITTED CAPACITY GALLONS
1.	Chlor-Alkali II	Block 35	2,000,000

Prior to closure the Permittee will not place any hazardous waste in these impoundments which are incompatible, reactive, or ignitable as required by LAC 33:V.2913, 2915 and 1517.

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D. INCINERATORS (3)

The Permittee is allowed to utilize and operate three (3) incinerators to burn hazardous waste stored either in the tanks permitted under IV.A. or the container storage areas listed under IV.B.

1. Solvents Plant (Liquid - Injection) Incinerator

2. Vinyl II Plant (Liquid - Injection) Incinerator

3. Environmental Operations (Rotary-Kiln) Incinerator

E. LANDFILLS (2)

1. Northwest Landfill (NWLF)

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The Permittee is allowed to operate an existing landfill designated as the Northwest Landfill (NWLF) until the remaining reserve capacity has been utilized. Upon cessation of operations it will be closed according to the closure plan (Attachment 5).

The Northwest Landfill shall only be utilized to dispose of Environmental Operations recovered incinerator particulate, ash, and on-site generated asbestos.

This landfill is constructed in two (2) sections. Maximum capacity is approximately nine 78.5 acre feet (127,000 cubic yards). It will not be expanded to include any additional area.

Post-closure care shall be according to the plan included as Attachment 5.

2. Block 80 Landfill

The Permittee will be allowed to construct a landfill in their Block 80 Environmental Operations facility.

It will be in an area some 440 feet wide and 600 feet long and is to ultimately contain approximately no more than 131,000 cubic yards (81.2 acre feet) of fill material.

The Block 80 Landfill shall only be utilized to dispose of Environmental Operations recovered incinerator particulate and ash.

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V. PERMIT CONDITIONS APPLICABLE TO PERMITTED FACILITIES

A. TANKS (14)

1. CONDITIONS

a) The conditions related to treatment and/or storage of hazardous waste shall be limited to those tanks listed under Part IV, Permitted Facilities, together with all associated piping, pumps, instruments, containments, and vent controls.

b) The Permittee shall have and maintain, or provide secondary containment for all tanks (14) in accordance with LAC 33:V.1907.

c) The Permittee shall store ignitable, reactive, or incompatible wastes only in accordance with LAC 33:V.1517, 1917, and 1919.

2. OPERATION AND MAINTENANCE OF EXISTING TANKS

a) The Permittee will maintain the existing permitted tanks according to the design code specified for each tank as listed in Table 1.

TABLE 1

TANK	TYPE	SERVICE AREA	CAPACITY GALLONS	DESIGN CODE
T-400		Vinyl Plant	49,300	API-650
T-410		Vinyl Plant	375	Field Fabricated
D-13		Horizontal Solvents Plant	2,500	ASME-Sec. 8-Div. 1
D-15	Horizontal	Solvent Plant	20,000	ASME-Sec. 8-Div. 1
D-92A	Horizontal	Solvent Plant	370	ASME-Sec. 8-Div. 1
D-700	Vertical	Solvent Plant	2,800	ASME-Sec. 8-Div. 1
D-701	Vertical	Solvent Plant	50	Plastic Lined Pipe
T-749	Horizontal	Solvent Plant	12,000	ASME-Sec. 8-Div. 1
V-201	Horizontal	Solvent Plant	32,000	ASME-Sec. 8-Div. 1
T-130	Vertical	Environmental Operations	20,000	API-650
T-135	Vertical	Environmental Operations	20,000	API-650
T-250	Vertical	Environmental Operations	20,000	API-650
T-255	Vertical	Environmental Operations	20,000	API-650
T-401	Vertical	Environmental Operations	11,300	API-650
Sump 130	In Ground	Environmental Operations	17,000	
Sump 265	In Ground	Environmental Operations	22,000	

b) The Permittee will maintain the shell thickness of the permitted tanks according to the following Table 2 and not exceed the listed operating conditions.

TABLE 2

TANK	MAXIMUM PERMITTED CAPACITY GALLONS	DESIGN SHELL THICKNESS (inches)	PRESSURE RATING PSI & TEMP oF	PERMITTED MINIMUM SHELL THICKNESS (inches)
T-400	49,300	0.25	ATMS @ 150	.1875
T-410	375	0.50	ATMS @ 150	.1875
D-13	2,500	0.1875	50 PSI @ 230	.1875
D-15	20,000	20,000	121 PSI @ 230	.1875
D-92A	370	0.500	100 PSI @ 100	.1875
D-700	2,800	0.3125	75 PSI @ 100	.1875
D-701	50	Teflon Lined	150 PSI @ 100	.1875
T-749	12,000	1.000	75 PSI @ 100	.1875
V-201	32,000	0.500	25 PSI @ 100	.1875
T-130	20,000	0.3125	ATMS @ 200	.1875
T-135	20,000	0.3125	ATMS @ 200	.1875
T-250	20,000	0.3125	ATMS @ 200	.1875
T-255	20,000	0.3125	ATMS @ 200	.1875
T-401	11,300	0.375	ATMS @ 100	.1875
SU 130	17,000	In Ground Tank		
SU 265	22,000	In Ground Tank		

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c) Tank Inspection and Testing and Maintenance

(1) The Permittee shall inspect while the facility is in operation, all tanks, piping, valves, vent controls, and associated instrumentation at least daily to detect any exterior signs of corrosion, cracks, or leaks as required by LAC 33:V.1911.

Such inspections shall be duly logged in the operating record and any equipment failures, and resulting leaks or spills described fully in the annual report.

(2) The Permittee's results of the most recent ultrasonic or equivalent tests for existing hazardous waste storage tanks (Attachment 8) indicates they meet the requirements of the specified permitted wall thicknesses as required by the

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design specifications (API or ASME) under which they were built.

Such information shall be updated biennially and made a part of this permit as Attachment 8.

(3) The Permittee will conform, where applicable, to the appropriate sections of the API Code 510 (latest edition) for maintenance inspection, rating, repair, and alteration of all pressure vessels and tanks (API Code 510) and atmospheric and/or low pressure storage vessels and tanks (Chapter XIII of the API Code). Such codes establish the procedures for repairing sections tanks, nozzles or other openings and are specifically detailed in the above listed API Codes.

(4) If any shell thickness measurements for areas of the tank as defined in Section V. .2.C)(2) or (3) (above) are less than those listed in Table 2 of this Permit Section such tank or vessel shall be removed from service and emptied of hazardous waste.

The tank or vessel shall be repaired or replaced as described in Section V.A.2.C)(3) (above) or equivalent before service can be re-established for hazardous waste.

d) Operation of All Tanks

(1) The Permittee shall prepare daily log sheets to record, where applicable, the following operating and inspection information for all tanks and related vessels.

i) All monitored information including

temperatures,

pressures,

levels, and

pump flows into and out of these tanks.

ii) Overfilling controls to ensure they are in working order.

iv) Routine inspection of levels for those tanks not having control devices.

(2) The Permittee will prepare daily log sheets to record, where applicable the following inspection information for all tanks and related vessels.

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i) The results of visible inspection of all tanks and associated piping, valves, fittings, instruments, and vent control and relief systems.

ii) This log shall also include inspection of the containment areas for leaks or spills as well as the dikes of containment walls for structural integrity.

(3) Hazardous waste storage tanks shall be covered and shall not be vented directly to the atmosphere if the tanks are used to store, or if a possibility exists that they may be used to store, volatile or malodorous waste.

(4) The Permittee shall not store wastes which are incompatible with the tank materials of construction which would cause accelerated rates of corrosion as evidenced by frequent maintenance and repair. Such evidence must be corrected as required by LAC 33:V.1909.

e) Operation of Ancillary Facilities

The Permittee must conform to the following permit conditions for Sumps 130 and 265.

(1) The Permittee must report the results of a leak test, and internal inspection as prescribed by LAC 33:V.1903.B.5.b).

(2) The Permittee must respond to any leaks or spills as required by LAC 33:V.1913.

(3) Any spilled material or material trapped in sumps that is a hazardous waste or that will be disposed of as a hazardous waste must be cleaned up in a timely manner as required by LAC 33:V.1505.C.3.

f) Closure

The Permittee shall close all tanks in accordance with Section III.N. of this permit and the Closure/Post-Closure Plan, Attachment 5.

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B. CONTAINER STORAGE

1. Requirements for Containers

a) The storage of containers containing hazardous waste will be on pallets and

shall not be more than the equivalent of two (2) fifty five gallon drums in height

and no more than the equivalent of four (4) fifty five (55) drums per tier on the pallet and conform to LAC 33:V.2109.B. and 1511.F.

b) The Permittee must maintain the conditions of all containers in accordance with LAC 33:V.2103.

c) The Permittee must use containers which are compatible with the waste as required by LAC 33:V.2105.

d) The Permittee must manage the containers in accordance with LAC 33:V.2107.

2. Requirements for Container Storage Area

a) The Permittee will remove any spilled or leaked waste and accumulated stormwater in a timely manner to prevent area and potential ground water contamination per LAC 33:V.2111.B.5. and 6.

All discharges from the five (5) container storage areas shall be through a NPDES permitted outfall.

b) The Permittee must maintain those records and documents required by LAC 33:V.1515 for the implementation of the Contingency Plan for the five (5) container storage areas.

c) The Permittee must inspect, at least weekly, the containment areas in accordance with LAC 33:V.2109 and 1509.

Results of such inspections must be placed in the operating log and any incidence involving leaking containers

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and spilled materials detailed in the annual report.

3. General Requirements

a) The Permittee must insure that all personnel receive initial and continued training to insure compliance with LAC 33:V.1515.

b) The Permittee must control and report all point source discharges according to LAC 33:V.1505.

c) The Permittee must assure compliance with LAC 33:V.1517 and 2115 with respects to ignitable, reactive, or incompatible waste.

d) The Permittee must assure compliance with respect to LAC 33:V.1525 which relates to emergency response.

C. IMPOUNDMENTS

Even though the Permittee was issued a closure permit for the Chlor-Alkali II impoundment it is anticipated that will be utilized as an operating facility at the time of issuance of the draft permit. Therefore, the following conditions are included in this draft permit for operation of this facility prior to actual closure or until no further hazardous waste is placed in it.

1. The operating volume of the Chlor-Alkali II impoundment has been set forth in Section IV.C.

2. The Permittee shall endeavor to keep the operating levels of this impoundment at as practical a minimum as possible. At no time will the level of this impoundment exceed two (2) feet of freeboard measured at the lowest point of the containment dikes.

Maintenance of this minimum level shall be by routine inspections,

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the results of which shall be placed in an inspection (operating) log once daily.

Any major diversion from normal operations and levels shall be incorporated in the annual report.

An accurate and readable gauge shall be within this impoundment to indicate the freeboard level.

3. The Permittee shall further limit the impoundment level when necessary to prevent overtopping as a result of normal or abnormal operations, and severe wind and resulting potential wave action.

4. The Permittee shall maintain no less than two (2) pumps in working order for continuous removal of waste waters from the impoundment.

The routine inspections of these pumps, piping and instrumentation shall be documented an inspection log sheets.

5. The integrity of surrounding impoundment dikes shall be examined according to the inspection schedule and comments recorded in the operating record.

6. The Permittee shall close the Chlor-Alkali II impoundment as set forth in the closure plan.

7. The Permittee shall not place ignitable or reactive waste in this surface impoundment.

D. INCINERATORS

1. General Requirements Which Apply To All Three (3) Incinerators

The Permittee shall operate and maintain each of the three (3) permitted incinerators to meet the following performance standards.

a) The Permittee will operate each of the three (3) incinerators to achieve minimum destructive and removal efficiencies

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(DRE) of 99.99% for each principal organic hazardous constituent (POHC) as defined in Table I of LAC 33:V. Chapter 31 and other components listed in LAC 33:V. Chapter 49. DRE shall be determined by using the method specified in LAC 33:V.3111.A.1.

b) The Permittee will control hydrogen chloride (HCl) emissions such that the rate of emission from each stack is no greater than the larger of either four (4) pounds per hour or one percent (1%) of the HCl in the stack gas prior to entering any pollution control equipment.

c) The Permittee will operate each of the three (3) incinerators such that each individual exhaust stacks will not emit particulate matter in excess of 0.08 grains per dry standard cubic foot in accordance with the formula specified in LAC 33:V.3111.A.3.

d) Compliance with the operating requirements specified in this permit will be regarded as compliance with V.D.1.a), b), and c). However, any evidence of non-compliance with these performance standards may be grounds for revocation, modification or reissuance of this permit pursuant to LAC 33:V.323.

e) The Permittee shall not incinerate wastes which are infectious, radioactive, F020, F021, F022, F023, F026, F027 (dioxin listed wastes), explosives, or PCBs in concentrations greater than 50 ppm. Wastes containing PCB's in concentrations greater than 50 ppm shall not be incinerated unless a TSCA permit has been obtained for the incinerator.

f) Any hazardous waste which exhibits the characteristic of not being homogenous or stratifies or separates into phases under noncirculating conditions must be fed or direct burned in the incinerator complex and/or kiln where applicable, only under the following conditions:

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(1) It must be fed through only one (1) identifiable injection nozzle.

(2) Total direct burn feed shall not exceed 4% by weight of the total combustion gases calculated in lbs./hr.

(3) The waste analysis plan shall include approved test methods other than those specified in SW-846 for establishing the conditions and limits for characterization as to homogeneity, or being capable of stratifying or separating into phases under nonflow or static conditions.

g) The Permittee shall inspect and, if necessary, analyze each hazardous waste movement received from off-site at the facility to determine whether it matches the identify of the waste specified on the accompanying manifest or shipping paper.

2. Solvents Plant Incinerator

a) Operating Conditions

(1) The hazardous wastes incinerated in the Solvents Incinerator shall be limited to wastes generated in Block 16 (The Solvents Production Block) and wastes generated in other production units generating chlorinated tars and residues. Transport and handling of such tars and residues shall comply with LAC 33:V.1319.C and 1527.D.

(2) All feed to this incinerator, vents and any auxiliary fuels shall be tested, measured, and recorded as required by LAC 33:V.1529 and the Waste Analysis Plan, Attachment 1.

(3) The maximum waste feed rate to the incinerator shall be 8,700 lb/hr.

(4) The maximum heat input to the incinerator shall be 23,500,000 BTU/HR, including vent gases and auxiliary fuel.

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(5) The waste feed to the incinerator shall contain no more than 7,200 lb/hr pounds per hour of total halogen.

(6) The waste feed to the incinerator shall contain no more than 100 lb/hr bromine.

(7) The waste feed to the incinerator shall contain no more than 1.65 pounds per hour of ash.

(8) The viscosity of the hazardous waste feed shall be maintained by preheat and steam/air pressure to insure proper atomization through the burner nozzles.

(9) The Permittee shall not incinerate any listed waste (Table 1-LAC 33:V. Chapters 31 or 49) in concentrations greater than 100 ppm with a heat of combustion less than that of carbon tetrachloride (.24 Kcal/gr. or 432 BTU/lb).

(10) The incinerator shall operate at steady state within permitted combustion temperatures and air flow prior to introduction of hazardous waste. No fuel except natural gas commercial fuel oil, or waste derived liquid fuels specifically approved by LDEQ for the Permittee shall be used in the start-up or shut-down of the incinerator.

(11) All mass flow rates and parameters which are calculated from flow rates and an analysis, including heat release rate, total halogen, bromine, and ash, shall be determined hourly, and each excursion shall be documented in the operating record.

b) Process Conditions

(1) The minimum instantaneous cut-off temperature in the combustion zone shall be a minimum of 1080°C (1,976°F). Incineration of hazardous waste is prohibited in the Solvents incinerator below 1080°C (1,976°F).

(2) The maximum combustion air flow rate shall not exceed 25,300 lb/hr. This flow

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rate and the heat release rate shall be an indicator of the combustion gas flow. The combustion air flow rate shall be continuously monitored, the data extracted at one (1) minute intervals computer stored, and printed hourly with the average valves.

(3) The combustion gas concentration of carbon monoxide (CO) as continuously measured in the stack outlet shall be controlled as follows:

CO Limit

- If CO average concentration exceeds 100 ppm for any sixty (60) minute period. This average concentration shall be based on a continuously monitored rolling average updated each succeeding minute.
- This rolling average shall be continuously corrected to 7% O_2.
- $CO_{corrected} = CO_{measured} \times \frac{14}{21 - \%\ O_2}$
- CO Levels are on a Dry Stack Gas Basis.
- Waste feeds must be cut-off instantaneously if the limit is exceeded. Waste feed may be resumed only when permitted operating conditions (steady state) are reached. (See iv below).

(4) If the CO concentration exceeds the limits described in V.D.2.b)iii), the Permittee may not resume incineration of hazardous waste until the incinerator has been brought back to permitted operating temperature and CO concentration conditions.

These permitted conditions shall be evidenced by maintaining a time weighted average CO level not to exceed 100 ppm for an average period of not less than ten (10) minutes at a temperature higher than cut-off combustion zone temperature.

(5) The concentration of oxygen (O_2) in the combustion gases shall not be less than

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2% on a dry basis. At any time the O_2 concentration falls below this value, all hazardous waste feed shall be immediately cut-off.

The hazardous waste feed shall not be reintroduced until the O_2 concentration has been increased to 2% on a dry basis in the stack.

The CO must be at levels indicated in V.D.2.b)iii) above.

(6) The Permittee shall monitor the steam/air pressure used for atomizing the hazardous waste feeds.

Monitored results shall be recorded. In the event of the loss of steam/air pressure below 40 psi for any feed nozzle the hazardous waste feed for the affected nozzle shall be immediately cut-off and not reintroduced until this pressure has been re-established at the above pressure.

(7) The hazardous waste feed through each burner gun and the atomizing steam rate shall be such that proper atomization shall be maintained.

c) Equipment Testing

The Permittee shall test the following waste feed cut-off systems at a minimum of once per month, and

record in the operating record. The vent control feed system may be tested for cut-off response through control valve movement or any other check to determine its operational capability in the event of an emergency.

(1) Hazardous waste feeds and vents low combustion temperature cut-off. (See V.B.2.b)i).

(2) Hazardous waste feeds and vents high CO cut-off.

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(3) Hazardous waste feeds and vents cut-offs for low O_2.

(4) Hazardous waste feeds and vents low primary and secondary scrubber flow cut-off.

(5) Hazardous waste feeds and vents cut-offs for a temperature exiting the secondary scrubber greater than 190°F (87.8°C).

(6) Hazardous waste feeds and vents cut-offs for a loss of combustion air.

d) Automatic Shutdown Conditions

The hazardous waste feed to the incinerator shall stop immediately whenever:

(1) There is a loss of power to the combustion air blower.

(2) There is a loss of power to the exhaust blower.

(3) There is a power outage.

(4) There is a loss of instrument air.

5) There is a loss of atomization steam

(6) There is a loss of primary scrubber water.

(7) There is a loss of secondary scrubber water.

(8) The temperature exiting the secondary scrubber exceeds 190°F (87.8°C).

(9) There is a loss of caustic (NaOH) flow to the secondary scrubber.

(10) The combustion air flow rate exceeds 25,300 lb/hr.

(11) The combustion temperature drops below 1080°C (1,976°F).

(12) The CO concentration exceeds the limits described in V.D.2.b)iii).

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(13) The O_2 concentration drops below 2%.

e) The date, cause, and remedial action for each cut-off activation shall be documented in the operating record.

f) Monitoring Conditions

(1) Carbon monoxide (CO) at a point in the system downstream of the combustion zone and prior to release to the atmosphere shall be continuously monitored,

the data extracted at one (1) minute intervals,

computer stored,

and printed hourly with average values.

(2) The combustion gas temperature exiting the combustion chamber shall be continuously monitored,

the data extracted at one (1) minute intervals,

computer stored,

and printed hourly with average values.

The accuracy of the measurement shall be ± 3%.

(3) The indicator of combustion gas velocity, as measured by combustion air and heat release rate shall be continuously monitored,

the data extracted at one (1) minute intervals,

computer stored,

and printed hourly with average values.

(4) The Permittee shall correlate combustion air flow with combustion zone gas velocity (residence time). This air flow shall be continuously monitored,

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the data extracted at one (1) minute intervals,

computer stored,

and converted to combustion zone gas velocity and

printed on an hourly basis with average values.

(5) The hazardous waste feed rates shall be continuously monitored,

the data extracted at one (1) minute intervals,

computer stored, and

printed hourly with average values.

(6) The oxygen (O_2) concentration in the stack gas shall be continuously monitored,

the data extracted at one (1) minute intervals,

computer stored,

and printed hourly with average values.

(7) The Permittee shall utilize the information obtained by additional flow meters, temperature, pressure gauges and electrical measurements as needed to operate in compliance with the performance standards of LAC 33:V.3111.

(8) The Permittee shall demonstrate compliance with Performance Specifications 3 and 4 of 40 CFR Part 60, Appendix B for the CO and O_2 continuous monitors.

g) Calibration Requirements

The monitoring system equipment shall be calibrated in accordance with the facility and instrument operating procedure.

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The Permittee shall calibrate the carbon monoxide (CO) and oxygen (O_2) analyzers at a minimum of once each day.

The Permittee shall install redundant HCl Scrubber System pH monitors and calibrate once per month or when the pH difference between the two is greater than one (1) pH unit.

h) Inspection Requirements

(1) The incinerator and associated equipment (pumps, valves, conveyors, pipes, etc.) must be subjected to thorough visual inspection, at least daily, while the facility is in operation, for leaks, spills, fugitive emissions, and signs of tampering.

(2) This monitoring and inspection data must be recorded and placed in the operating record.

(3) Upon request by the administrative authority, sampling and analysis of the waste and exhaust emissions must be conducted to verify that the operating requirements established in the permit achieve the performance standards of LAC 33:V.3111.

i) Special Conditions

(1) Operations Manual

The Permittee shall compile and keep current an operations manual covering all aspects of the Permittee's treatment, storage and incineration facility.

(2) Facility Manning and Operations

The Permittee shall staff the incinerator operations with sufficiently trained technical personnel to insure that the incinerator and all related facilities are operated to minimize any impact on human health, the environment, and safety considerations.

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In addition supervision shall provide written instructions to achieve the performance standards set forth under V.D.1 and 2.

j) Shutdown Causes

The Permittee shall compile a list monthly of any hazardous waste shutdowns due to the following:

(1) A trip of any of the automatic waste feed cut-offs.

(2) Power failure.

(3) Equipment malfunction.

(4) Improper operation.

(5) Unknown or unexplainable shutdowns.

k) Adequate Mixing of Wastes

Prior to feeding sludge or liquid hazardous wastes into the incinerator the wastes in the feed tanks shall be uniform and consistent to insure proper incinerator operation. Adequate analytical data must be easily accessible to control room operators to calculate all inlet loadings and flow rates.

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1) Closure

At closure the owner or operator must remove all hazardous waste residue (including and not limited to ash, scrubberwaters, and scrubber sludges, from the incinerator site).

3. Vinyl II Plant Incinerator

a) Operating Conditions

(1) The hazardous wastes to be incinerated shall be limited to the wastes generated in Block 66 having a heat of combustion greater than or equal to carbon tetrachloride (.24 Kcal/gr. or 432 BTU/lb).

(2) All feed to this incinerator, vents and any auxiliary fuels shall be tested, measured, and recorded as required by LAC 33:V.1529 and the Waste Analysis Plan, Attachment 1.

(3) The heat input to incinerator including vents and auxiliary fuel shall be limited to the two (2) conditions listed below.

Nonhazardous fuel must be utilized to bring the temperature to condition 2 from 1 and

operating conditions stabilized prior to substituting hazardous waste for fuel. Operating conditions will not be interpretive between these two (2) conditions.

	Condition I	Condition II
Maximum Waste Feed Rate	4,134 lbs/hr	5,659 lbs/hr
Maximum Heat Release Rate (including vent gas and auxiliary fuels)	21,700,000 BTU/hr	26,900,000 BTU/hr
Maximum Combustion Air Flow rate SCFM	3,714 SCFM 1,125°C (2,057°F)	3,823 SCFM 1,246°C (2,275°F)

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(4) The waste feed to the incinerator shall contain no more than 4,250 pounds per hour of total halogen.

(5) The waste feed to the incinerator shall contain no more than eighty-four (84) pounds per hour bromine.

(6) The waste feed to the incinerator shall contain no more than ninety-two (92) pounds per hour ash.

(7) The viscosity of the hazardous waste feed shall be maintained by preheat and steam if necessary to insure proper atomization through the burner nozzles.

(8) The Permittee shall not incinerate any listed waste (Table I-LAC 33:V. Chapters 31 or 49 in concentrations greater than 100 ppm with a heat of combustion less than that of carbon tetrachloride (.24 Kcal/gr. or 432 BTU/lb).

(9) The incinerator shall operate at steady state within permitted combustion temperatures and air flow prior to introduction of hazardous waste.

No fuel except natural gas, commercial fuels, nonhazardous off gasses or waste derived nonhazardous liquid fuels specifically approved by LDEQ for the Permittee shall be used in the start-up or shutdown of the incinerator.

(10) All mass flow rates and parameters which are calculated from flow rates and an analysis, including heat release rate, total halogen, bromine, and ash, shall be determined hourly

and each excursion shall be documented in the operating record.

b) Process Conditions

(1) The minimum cut-off combustion temperature in the combustion zone shall be 1125°C (2,057°F). During any start up hazardous waste may not be incinerated

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until this temperature is achieved in the combustion zone.

(2) The maximum combustion air flow rate shall not exceed 3,714 SCFM during condition 1 and 3,823 SCFM during condition 2.

This flow rate shall be the indicator of combustion gas velocity. The combustion air flow rate shall be continuously monitored and recorded.

(3) The combustion gas concentration of carbon monoxide (CO) as continuously measured in the stack outlet shall be controlled as follows:

CO Limit

- If CO average concentration exceeds 100 ppm for any sixty (60) minute period. This average concentration shall be based on a continuously monitored rolling average updated each succeeding minute.
- This rolling average shall be continuously corrected to 7% O_2.
- $CO_{corrected} = CO_{measured} \times \frac{14}{21 - \%\ O_2}$
- CO Levels are on a Dry Stack Gas Basis.
- Waste feeds must be cut-off instantaneously if the limit is exceeded. Waste feed may be resumed only when permitted operating conditions (steady state) are reached. (See iv below).

(4) If the CO concentration exceed the limits describe in V.D.3.b)iii) the Permittee may not resume incineration of hazardous waste until the incinerator has been brought back to permitted operating temperature and CO concentration conditions. These permitted conditions shall be evidenced by maintaining a time weighted average CO level not to exceed 100 ppm for an average period of not less than ten (10) minutes at a temperature

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higher than the cut-off combustion zone temperature.

(5) The concentration of oxygen (O_2) in the combustion gases shall not be less than 2% on a dry basis. At any time the O_2 concentration falls below this value, all hazardous waste feed shall be immediately cut-off. The hazardous waste feed shall not be reintroduced until the O_2 concentration has been increased to 2% on a dry basis in the stack. The CO must be at levels indicated in V.D.2.b)iii) above.

(6) The Permittee shall monitor the steam and/or air used for atomizing the hazardous waste feeds. Monitored results shall be recorded. In the event of loss of steam pressure/air pressure below 40 psi for any feed the hazardous waste feed for the affected nozzle shall be immediately cut-off and not reintroduced until this pressure has been re-established at the above pressure.

(7) The hazardous waste feed through each burner gun and atomizing steam rate shall be such that adequate atomization shall be maintained.

c) Equipment Testing

The Permittee shall test the following waste feed cut-off systems and the corresponding alarms at a minimum of once per month and

record in the operating record. The vent control feed system may be tested for cut-off response through control value movement or any other check to determine its operational capability in the event of an emergency situation.

(1) Hazardous waste feeds and vents low combustion temperature cut-off.

(2) Hazardous waste feeds and vents high CO cut-off.

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(3) Hazardous waste feeds and vents cut-offs for low O_2.

(4) Hazardous waste feeds and vents low primary and secondary scrubber water flow cut-off.

(5) Hazardous waste feeds and vents cut-offs for a temperature exiting the final scrubber greater than 190°F (87.8°C).

6) Hazardous waste feeds and vents cut-offs for a loss of combustion air.

(7) Hazardous waste feeds and vents cut-off for a quench drum exiting temperature of 260°F (126.7°C).

d) Automatic Shutdown Conditions

The hazardous waste feed o the incinerator shall stop immediately whenever:

(1) There is a loss of power to the combustion air.

(2) There is a loss of power outage.

(3) There is a loss of instrument air.

(4) There is a loss of atomization steam/air,

(5) There is a loss of primary scrubber water.

(6) There is a loss of scrubber water flow to the venturi scrubbers.

(7) The temperature exiting the final stack scrubber exceeds 190°F (87.8°C).

(8) There is a loss of caustic flow to the final stack scrubber.

(9) The discharge pressure from the combustion air blower falls below 30 inches of water.

(10) The combustion temperature drops below 1125°C (2,057°F).

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(11) The concentration of CO in the combustion gases exceed the limits described in V.D.3.b)iii).

(12) The concentration of oxygen in the combustion gases drops below 2%.

(13) The combustion air flow exceeds 3,714 SCFM during Condition 1 and 3,823 SCFM during Condition 2.

e) The data, cause, and remedial action for each waste feed cut-off activation shall be documented in the operating record.

f) Monitoring Conditions

(1) Carbon monoxide (CO) at a point in the system downstream of the combustion zone and prior to release to the atmosphere shall be continuously monitored,

the data extracted at one (1) minute intervals,

computer stored,

and printed hourly with average values.

(2) The combustion gas temperature exiting the incinerator shall be continuously monitored,

the data extracted at one (1) minute intervals,

computer stored,

and printed hourly with average values. The accuracy of the instrument shall be ±3%.

(3) The indicator of combustion gas velocity, as measured by combustion air and heat release rate shall be continuously monitored,

the data extracted at one (1) minute intervals,

computer stored,

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and printed hourly with average values.

(4) The Permittee shall correlate combustion air flow with combustion zone gas velocity (residence time). This air flow shall be continuously monitored,

the data extracted at one (1) minute intervals,

computer stored,

and printed hourly with average values.

(5) The hazardous waste feed rates shall be continuously monitored

the data extracted at one minute intervals,

computer stored,

and printed hourly with average valves.

(6) The oxygen (O_2) concentration in the stack gas shall be continuously monitored,

the data extracted at one (1) minute intervals,

computer stored,

and printed hourly with average values.

(7) The Permittee shall utilize the information obtained be additional flow meters, temperature, pressure gauges and electrical measurements as needed to operate in compliance with the performance standards of LAC 33:V.3111 and other requirements described herein.

(8) The Permittee shall demonstrate compliance with performance specifications 3 and 4 of 40 CFR Part 60, Appendix B for the CO and O_2 continuous monitors.

g) Calibration Requirements

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The monitoring system equipment shall be calibrated in accordance with the facility and instrument operating procedure.

The Permittee shall calibrate the carbon monoxide (CO) and oxygen (O_2) analyzers at a minimum of once each day.

The Permittee shall install redundant HCl Scrubber System pH monitors and calibrate once per month or when the pH difference between the two is greater than one (1) pH unit.

h) Inspection Requirements

(1) The incinerator and associated equipment (pumps, valves, conveyors, pipes, etc.) must be subjected to thorough visual inspection, at least daily, while the facility is in operation, for leaks, spills, fugitive emissions, and signs of tampering.

(2) This monitoring and inspection data must be recorded and placed in the operating record.

(3) Upon request by the administrative authority, sampling and analysis of the waste and exhaust emissions must be conducted to verify that the operating requirements established in the permit achieve the performance standards of LAC 33:V.3111.

i) Special Conditions

(1) Operations Manual

The Permittee shall compile and keep current an operations manual covering all aspects of the Permittee's treatment, storage and incineration facility.

(2) Facility Manning and Operations

The Permittee shall staff the incinerator operations with sufficient trained and technical personnel to insure that the incinerator and all related facilities

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are operated to minimize any impact on human health, the environment and safety considerations.

In addition supervision shall provide written instructions to achieve the performance standards set forth under V.D.1 and 3.

j) Shutdown Causes

The Permittee shall compile a list monthly of any hazardous waste shutdowns due to the following:

(1) A trip of any of the automatic waste feed cut-offs.

(2) Power failure.

(3) Equipment malfunction.

(4) Improper operation.

(5) Unknown or unexplainable shutdowns.

k) Adequate Mixing of Wastes

Prior to feeding sludge or liquid hazardous wastes into the incinerator the wastes in the feed tanks shall be uniform and consistent to insure proper incinerator operation.

Adequate analytical data must be easily accessible to the control room operators to calculate permitted inlet loadings and flow rates.

l) Closure

At closure the owner or operator must remove all hazardous waste residue (including and not limited to ash, scrubberwaters, and scrubber sludges, from the incinerator site).

4. Environmental Operations (Rotary Kiln) Incinerator

a) Operating Conditions

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(1) All feed to this incinerator, vents and any auxiliary fuels shall be tested, measured, and recorded as required by LAC 33:V.1529 and the Waste Analysis Plan, Attachment 1.

(2) The maximum waste feed rate to the incinerator shall be 13,638 lb/hr.

(3) The maximum heat input shall be 82,500,000 BTU/HR, including vent gases and auxiliary fuels.

(4) The waste feed shall contain no more than 1,519 pounds per hour of total chlorine.

(5) The waste feed shall contain no more than 27.6 lb/hr bromine.

(6) The waste feed shall contain no more than fifty (50) lb/hr fluorine.

(7) The liquid waste feed shall contain no more than 1,110 lb/hr ash.

(8) The viscosity of the hazardous waste feed shall be maintained by preheat and steam to insure proper atomization through the burner nozzles.

(9) The Permittee shall not incinerate any listed waste (Table I-LAC 33:V. Chapters 31 or 49) in concentrations greater than 100 ppm with a heat of combustion less than that of carbon tetrachloride (.24 Kcal/gr. or 432 BTU/lb).

(10) The incinerator shall operate at a steady state within permitted combustion temperature and other specified operating parameters prior to introduction of hazardous waste. Only nonhazardous waste fuels such natural gas, commercial fuels, trash, or waste derived fuels specifically approved by the LDEQ shall be used in the startup or shutdown of the incinerator.

(11) All mass flow rates and parameters which are calculated from flow rates and an analysis; including heat release rate,

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total halogen, bromine, and ash shall be determined hourly and

each excursion shall be documented in the operating record.

b) Process Conditions

(1) The minimum combustion temperature in the combustion zone of the secondary combustion chamber shall be 1615°F (879.4°C). The hazardous waste feed shall be cut-off immediately if it falls below this value. When operating the kiln the minimum exit temperature shall be 1060°F (571°C). The temperature of the kiln shall be 1060°F (571°C) prior to the incineration of waste.

(2) The maximum dry stack gas flow rate shall not exceed 27,579 dscfm.

(3) The combustion gas concentration of carbon monoxide (CO) as continuously measured in the stack outlet shall be controlled as follows:

CO Limit

- If CO average concentration exceeds 100 ppm for any sixty (60) minute period. This average concentration shall be based on a continuously monitored rolling average updated each succeeding minute.
- This rolling average shall be continuously corrected to 7% O_2.
- $CO_{corrected} = CO_{measured} \times \frac{14}{21 - \%\ O_2}$
- CO Levels are on a Dry Stack Gas Basis.
- Waste feeds must be cut-off instantaneously if the limit is exceeded. Waste feed may be resumed only when permitted operating conditions (steady state) are reached. (See iv below).

(4) If the CO concentration exceed the limits described in V.D.4.b)iii) the Permittee may not resume incineration of hazardous

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waste until the incinerator has been brought back to normal operating temperature and CO concentration conditions. These normal conditions shall be evidenced by maintaining a time weighted average CO level not to exceed 100 ppm for an average period of not less than ten (10) minutes.

(5) The concentration of oxygen (O_2) in the combustion gases shall not be less than 2% on a dry basis. At any time the O_2 concentration falls below this value, all hazardous waste feed shall be immediately cut-off.

The hazardous waste feed shall not be reintroduced until the O_2 concentration has been increased to 2% on a dry basis in the stack. The CO must be at levels indicated in V.D.4.b)iii) above.

(6) The Permittee shall monitor the steam and/or air used for atomizing the hazardous waste feeds. Monitored results shall be recorded. In the event of the loss of steam pressure below 8 psi for the sludge nozzle and 15 psi for the other liquid nozzles the hazardous waste feed shall be immediately cut-off to the nozzle at which the pressure has dropped below the specific cutoff psi and not reintroduced until this pressure has been re-established at the above pressure.

(7) The hazardous waste feed through each burner gun and atomizing steam rate shall be such that proper atomization shall be maintained.

(9) The maximum rotational speed of the kiln shall be limited to the manufactures recommendation of no more than 20 revolutions per hour (2 minutes per revolution) while burning hazardous waste.

c) Equipment Testing

The Permittee shall test the following waste feed cut-off systems at a minimum

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of once per month and record in the operating record. Any vent control feed systems being fed to this incinerator may be tested for cut-off response through control value movement or any other check to determine its operational capability in the event of an emergency.

(1) Hazardous waste feeds and any vents for low temperature cut-off.

(2) Hazardous waste feeds and any vents for high CO cut-off.

(3) Hazardous waste feeds and any vents for cut-off for low O_2.

(4) Hazardous waste feeds and any vents cut-off for a loss of quench water flow and a maximum temperature of 225°F (107°C) for the combustion gases exiting the quench drum.

(5) Hazardous waste feeds cut-offs for a pressure in the kiln greater than a minus 0.05 inches of water.

(6) Hazardous waste feeds cut-offs when the pH water from the final stage of the ionizing wet scrubber falls below 6.0 for five (5) minutes.

(7) Hazardous waste feeds cut-off for a loss of current to the discharge electrodes or a loss of more than one (1) stage of the ionizing wet scrubber (IWS).

(8) Hazardous waste feeds cut-offs for a loss of combustion air to any affected burner guns.

Automatic Shutdown Conditions

d) The hazardous waste feed to the incinerator shall stop immediately whenever:

(1) There is a loss of power to the combustion air.

(2) There is a loss of power outage.

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(3) There is a loss of instrument air.			
(4) There is a loss of atomization steam			
(5) There is a loss of scrubber water.			
(6) The temperature exiting the quench drum exceeds 225°F (107°C).			
(7) There is a loss of negative pressure (minus 0.05 inches of water) in the kiln.			
(8) There is a loss of one (1) stage of the three (3) stages in the IWS except for the backwash of one (1) stage.			
(9) The pH of the final scrubber solution falls below 6.0 for more than five (5) minutes.			
(10) There is a loss of scrubber water to the exhaust IWS. Scrubber water flow shall be maintained at interim conditions through backwashing as prescribed by the manufacturer.			
(11) No packs of hazardous waste will be feed if the kiln ceases rotation as indicated by a control room monitor of the motor drive amps.			
(12) The bypass dump stack opens, regardless of the reason.			
(13) The combustion temperature in the secondary combustion chamber drops below 1615°F (879.4°C).			
(14) The temperature in the kiln drops below 1060°F (571°C).			
(15) The concentrations of CO in the combustion gases exceeds the limits described in V.D.4.b)iii.			
(16) The concentration of oxygen in the combustion gases drops below 2%.			
(17) The saturated combustion gas flow exceeds 36,500 ACFM.			

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e) The data, cause, and remedial action shall be documented for each waste feed cut-off activation in the operating record. The Permittee shall report in writing to the administrative authority if there are more than thirty (30) permit required waste feed cut-offs per month. This report shall include cause and remedial actions taken.

f) Monitoring Conditions

(1) Carbon monoxide (CO) at a point in the system downstream of the combustion zone and prior to release to the atmosphere shall be continuously monitored,

the data extracted every minute,

computer stored, and

printed hourly with average values.

(2) The combustion gas temperature exiting the incinerator shall be continuously monitored,

the data extracted every minute,

computer stored, and

printed hourly with average values. The accuracy of the measurement shall be ± 3%.

(3) The correlation of fan speed and/or motor loading shall be the indicator of combustion gas velocity. This indicator shall be continuously monitored,

the data extracted at one (1) minute intervals,

computer stored,

printed hourly with average values, and reported as combustion gas velocity.

(4) The hazardous waste feed rates shall be continuously monitored,

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the data extracted at one (1) minute intervals,

computer stored,

printed hourly with average values.

(5) The oxygen (O_2) content of the stack gas shall be continuously monitored,

the data extracted at one (1) minute intervals,

computer stored, and

printed hourly with average values.

(6) The Permittee shall utilize the information obtained by additional flow meters, temperature, pressure gauges and electrical measurements as needed to operate in compliance with the performance standards of LAC 33:V.3111 and other requirements described herein.

(7) The Permittee shall demonstrate compliance with performance specifications 3 and 4 of 40 CFR Part 60, Appendix B for the CO and O_2 continuous monitors.

g) Calibration Requirements

The monitoring system equipment shall be calibrated in accordance with the facility and instrument operating procedure. The Permittee shall calibrate the carbon monoxide (CO) and oxygen (O_2) analyzers at a minimum of once each day.

The Permittee shall install redundant HCl Scrubber System pH monitors and calibrate once per month or when the pH difference between the two is greater than one (1) pH unit.

h) Inspection Requirements

(1) The incinerator and associated equipment (pumps, valves, conveyors, pipes, etc.) must be subjected to thorough visual inspection, at least daily, while the

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facility is in operation, for leaks, spills, fugitive emissions, and signs of tampering.

(2) This monitoring and inspection data must be recorded and placed in the operating record.

(3) Upon request by the administrative authority, sampling and analysis of the waste and exhaust emissions must be conducted to verify that the operating requirements established in the permit achieve the performance standards of LAC 33:V.3111.

i) Special Conditions

(1) Operations Manual

The Permittee shall compile and keep current an operations manual covering all aspects of the Dow treatment, storage and incineration facility.

(2) Facility Manning and Operation

The Permittee shall staff the incinerator operations with sufficient trained and technical personnel to insure that the incinerator and all related facilities are operated to minimize any impact on human health, the environment, and safety considerations.

In addition supervision shall provide written instructions to achieve the performance standards set forth under V.D.1 and 4.

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j) Shutdown Causes

The Permittee shall compile a list monthly of any hazardous waste shutdowns due to the following:

(1) A trip of any of the automatic waste feed cut-offs.

(2) Power failure.

(3) Equipment malfunction.

(4) Improper operation.

(5) Unknown or unexplainable shutdowns.

(6) Adequate Mixing of Wastes

Prior to feeding sludge or liquid hazardous wastes into the incinerator the wastes in the feed tanks shall be uniform and consistent to insure proper incinerator operation.

Adequate analytical data must be easily accessible to the control room operators to calculate permitted inlet loadings and flow rates.

l) Closure

At closure the owner or operator must remove all hazardous waste residue (including and not limited to ash, scrubberwaters, and scrubber sludges, from the incinerator site).

E. LANDFILLS

1. General Design, Construction and Requirements

a) The construction and operation of the landfills must comply with this permit, the Department of Environmental Quality Rules and Regulations as set forth in LAC 33:V.517 and, Chapter 25 and be in accordance with plans and specification for design, construction and operations approved herein.

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b) Any variance from or modification of the approved plans and specifications for the design, construction and operation of the landfills and the terms and conditions of this permit is not allowed without the prior written approval from the Department Environmental Quality.			

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2. General Operating Conditions

The Permittee shall operate and maintain the two (2) permitted landfills to meet the following performance standards:

a) Run-off of storm water shall be managed to conform with LAC 33:V.2503.

Collected material must be properly disposed.

In addition the collected run-off shall be discharged through the NPDES outfall. Any incidences of run-off not collected and controlled shall be reported and made a part of the annual report.

b) The run-on control dikes to prevent any flow onto the active portion of the landfills.

Any incidences of run-on entering the containment areas shall be reported and made a part of the annual report.

c) All collection and holding facilities (sumps and tanks) associated with the run-on and run-off control systems must be emptied expeditiously to maintain the design capacity of the system as required by LAC 33:V.2503.E. For those facilities exempted under the 90-day exemption rule, the administrative authority interprets empty as requiring these facilities be rinsed after the contents are emptied to insure a minimum of residual contaminants.

d) If the landfill contains any particulate matter which may be subject to wind dispersal, the owner or operator must cover or otherwise manage the landfill to control wind dispersal.

Wetting of the landfill for control of particulate matter is not allowed unless the landfill is equipped with a leachate collection system equivalent to LAC 33:V.2503.A.2. pursuant to LAC 33:V.2503.F.

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After each deposition of hazardous waste within the landfill it shall be topped with a cover material to insure minimum wind dispersal as required by LAC 33:V.2503.F.

e) The Northwest Landfill shall only be utilized to dispose of Environmental Operations recovered incinerator particulate and ash meeting the requirements of LAC 33:V.1517, 2513, 2515, and 2517, and onsite generated waste asbestos.

Disposal of asbestos must be in accordance with OSHA regulations and LAC 33:V.III.2599. The Block 80 Landfill shall only be utilized to dispose of Environmental Operations recovered incinerator particulate and ash.

f) While in operation, each landfill must be inspected weekly and after storms to detect evidence of any of the requirements under LAC 33:V.2507.C.

g) The Permittee must maintain operating records as required by LAC 33:V.2509.

h) Closure and post-closure care shall be in conformity with LAC 33:V.2521 and the closure and Post-Closure Plan Attachment 5.

i) The receiving and monitoring of wastes into the landfills shall be performed according to LAC 33:V.1527.A, B, C, and D.

3. Northwest Hazardous Waste Landfill Design

The Permittee shall comply with the following minimum requirements for the landfill as specified in LAC 33:V. Chapters 5, 15, and 25. All design must comply with attached drawings Exhibit 1 and 2.

a) The facility is an unlined landfill relying on in situ clays for protection of the ground water. The landfill is composed of two (2) cells designated as

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Cell "A" and Cell "B". Cell "A" is rhombohedral in shape with the dimensions of: 277.5' x 305.0' x 282.5' x 305.0. Cell "B" is adjacent to and west of Cell "A". Cell "B" is roughly trapezoidal in shape with the dimensions of: 604' x 300' x 268' x 308'.

b) Each cell is surrounded by a permanent exterior recompacted silt levee with side slopes of 3:1 and an average crown elevation of 26' NGVD.

c) Cell "A" contains a leachate collection sump and pump structure that is common to both cells. The sump is located at Stas. 109 + 51.19N and 112 + 71.22E and connected to Cell "B" by a 12" PVC (SCH.40) pipe. The bottom of both cells is provided with a 2% slope toward the common sump. Leachate collection in Cell "B" is assisted by a central ditch leading to the sump. Elevation of the sump is 19.23' NGVD and the elevation of the twelve (12) inch collection pipe in Cell "B" has an inverse elevation of 15.0'.

d) The final elevation of this landfill shall be 45 NGVD.

4. Block 80 Hazardous Waste Landfill Design

a) All design must comply with attached drawings Exhibit 2A, 3, (3), 4 (4), 5, Figure 2.1 (2), 2.2, (2), 2.5, 2.6, 2.7, 2.8, 4.1, 4.2, 11.1 and 11.7.

b) The bottom liner must be constructed of recompacted clay or clayey soils having a minimum thickness of three (3) feet. The recompacted liner shall have a field hydraulic conductivity of 1' x 10-7 cm/sec or less. The bottom clay liner must be keyed into the recompacted clay exterior dike constructed to the same criteria as the bottom liner. The crown of the exterior dike system is not to exceed thirty-two (32) feet NGVD. The slope of the bottom liner to the centrally located leak detection sump shall be no less than two percent (2%).

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c) A continuous, sixty (60) mil thick H.D.P.E. membrane with an underlying geotextile must be placed upon the recompacted clay bottom liner. The H.D.P.E. membrane and geotextile components must cover the entire bottom clay liner and extend up slope to at least the center line of the exterior dike.

d) A leak detection, collection and removal system consisting of a geotextile overlain by two (2) courses of drainage geonet and covered with a geotextile must be incorporated. The composite leak detection system shall cover the entire bottom of the landfill and extend up slope to at least to the centerline of the exterior dike. The composite leak detection shall be overlain by eighteen (18) inches of clean sand in the bottom portion of the landfill. The entire leak detection collection and removal system shall drain to the centrally located leak detection sump.

e) The landfill must employ a primary, recompacted clay or clayey soil liner having a minimum thickness of two and one half (2?) feet thickness, placement must be upon the leak detection, collection and removal composite. The primary recompacted clay liner shall have a field hydraulic conductivity of 1 x-10-7 cm/sec or less. The slope of the primary clay liner to the centrally located runoff collection sump shall be no less than two percent (2%).

f) A continuous eighty (80) mil H.D.P.E. membrane must be incorporated with an underlying geotextile placed upon the primary, recompacted clay liner. The eighty (80) mil H.D.P.E. membrane and underlying geotextile shall cover the entire primary clay liner and extend up slope to at least centerline of the exterior dike. The H.D.P.E. liner must have a minimum slope of two percent (2%) towards the sump.

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g) A leachate collection and removal system consisting of two (2) courses of geonet overlain by a geotextile must be incorporated. The bottom portion of the composite leachate collection and removal system shall be covered with one (1) foot of clean sand. The composite leachate collection and removal system must cover the entire eighty (80) mil H.D.P.E. membrane and extend up slope to at least the centerline of the exterior dike. The leachate collection and removal composite must drain to the centrally located leachate collection sump.

h) The exterior perimeter dike of the landfill is to be constructed with side slopes no greater than three to one (3:1). The crown of this dike is to be provided with an anchor trench capable of retaining all geomembranes, geonets and geotextiles in such a manner as to prevent pull-out from waste placement and subsurface settlement forces.

i) The vertical riser pipes from the leak detection and leachate collection systems are to be forty-eight (48) inch diameter, H.D.P.E. piping. The H.D.P.E. pipes are to be compatible with the H.D.P.E. membrane materials so as to facilitate welding of the two materials together. The concrete support plates for the leachate collection and leak detection system shall be reinforced. Portland cement concrete formed in a five (5) feet by five (5) feet areal extents and of sufficient thickness to support the vertical, H.D.P.E. riser pipes.

j) The final closure cap shall consist of two (2) feet of compacted clay, sixty (60) mil H.P.D.E. liner, geotextile, two (2) courses of tensar drain, one (1) foot of clay and finally one (1) foot of top soil. The final height shall be no greater than 64 feet msl in the center.

5. Materials Specifications:

a) All clay and/or clayey soils used in the construction of the bottom recompacted

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clay liner, recompacted clay primary liner and the exterior dike system shall conform to the following standards:

(1) In Place Density 95% of Standard Proctor (ASTM D698)

(2) Moisture content at the time of compaction shall be 0 to 2% above optimune moisture content as determined by ASTM D698.

(3) Atterberg Limits

i) Liquid Limit 35% (min) ASTM - D-423

ii) Plastic Limit 15% (min) ASTM - D-424

(4) Field Permeability 1 x 10 - 7 cm/sec Double Ring Infiltrometer.

(5) Sieve Analysis ASTM - D-422

i) Percent retained on the number 40 - 15 (maximum)

ii) Percent retained on the number 200 - 25 (maximum)

(6) Clod Size - Not to exceed 3" diameter prior to compaction.

b) Geotextiles shall be a woven or non-woven needle punched fabric consisting only of long chain polymeric polyethylene, polyester, polyamid or polyvinylidene-chloride formed into a stable network of filaments such that the filaments retain their relative position to each other. The textile shall be inert to the soils, geonets, geomembranes and chemical constituents of the leachate and conform to the following physical properties:

(1) Grab Strength, wet: 400 lbs. (min) ASTM - D-1682

(2) Water Permeability: 0.30 cm/sec (min)

(3) Burst Strength: 750 psi (min) ASTM - D-751

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(4) Unaffected by mildew, water or saltwater			
c) High density polyethylene geomembranes shall conform to the following:			

Gauge (nominal)		80	60
Thickness, mils minimum	ASTM D1593 Paragraph 8.1.3	72	54
Specific Gravity (minimum)	ASTM D792	0.930	
Carbon Content	Method A	3%	
Minimum Tensile Properties (each direction)	ASTM D638		
Tensile Strength Yield (lb/in width)		120	
Tensile Strength at Break (lb/in width)		120	
Elongation at Yield (percent)		10	
Elongation at Break		500	
Modulus of Elasticity (lb/sq in)		80,000	
Tear Resistance (lb, minimum)	ASTM D1004 Die C	40	
Low Temperature, ^{o}F	ASTM D746 Procedure B	-40	
Dimensional Stability (each direction, percent change minimum)	ASTM D1204 212^{o}F, 15 min	±3	
Resistance to Soil Burial (percent change maximum in original value)	ASTM D3083 (as modified in Appendix A)		
Tensile Strength Yield		10	
Tensile Strength at Break		10	
Elongation at Yield		10	
Elongation at Break		10	

Modulus of Elasticity		10
Environmental Stress Crack (minimum, hours)	ASTM D1693 (as modified in Appendix A)	500
Factory and Field Seam Requirements		
Bonded Seam Strength (factory seam, breaking factor, ppi width)	ASTM D3083 (as modified in Appendix A)	108
Peel Adhesion (lb/in minimum)	ASTM D413 (as modified in Appendix A)	FTB**
Dead Load		
Room Temperature 73°F	See Appendix A	Pass
Elevated Temperature 158°F 25% Bonded Seam Load	See Appendix A	Pass
Resistance to Soil Burial	ASTM D3083 (as modified in Appendix A)	FTB** -20
Peel Adhesion		
Bonded Seam Strength (percent change maximum in original value)		

*Factory bonded seam strength is the responsibility of the fabricator.
**FTB - Film Tearing Bond

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d) The geonets to be used as a components of the leak detection, collection and removal system and the leachate collection and removal system shall be a polymer mesh structure composed of polyethylene with a stabilizer to prevent degradation of the physical properties of the geonets due to ultraviolet exposure. The geonets shall conform to the following specifications:

Property	ASTM	Unit	Qualifier	Values
Polymer Specific Gravity	D1505	----	Minimum	0.92

Polymer Melt Index	D1238	g/10 min	Minimum	0.2
Carbon Black Content	D4218	%	Minimum	2.2
Nominal Thickness	(1)	mm	-------	5±1
Property	ASTM	Unit	Qualifier	Values
Aperture Size	-----	mm	-------	7±1
Mass Per Unit Area	(1)	g/m^2 (oz/sq yd)	-------	670 (20)
Nominal Transmissivity(2)	(1)	m2/s (gpm/ft)	Minimum	5 x 10-4 (2.5)
Nominal Conductivity(3)	-----	m/s (cm/s)	Minimum	0.1 (10)
Compressive Stress Limit (4)	-----	KPa (psf)	Minimum	300 (6,000)
Tensile Strength	(1)	kN/m (lb/in)	Minimum	4 (23)

Notes:

(1) Use tentative methods being prepared by ASTM Committee D35 on Geotextiles and Related Products.

(2) The nominal transmissivity is the transmissivity of a net measured using water at 20°C (68°F), with a gradient of one, under a compressive stress of 10kPa (200 psf), between two steel plates.

(3) The nominal conductivity is obtained by dividing the nominal transmissivity by the nominal thickness (i.e. the thickness of the net measured between two steel plates under a compressive stress of 10 kPa, i.e. 200 psf).

(4) Value of the compressive stress at which the hydraulic transmissivity is 25% of the nominal transmissivity.

(5) MD = machine direction.

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e) The sand to be used as a component of the leachate collection and removal system and the

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leak detection, collection and removal system shall conform to the following specification:

		ASTM
SiO_2 content, percent	95 (minimum)	C-295
Percent passing the No. 4 Sieve	100	D-422
Percent passing the No. 200	15 (minimum)	
Coefficient of Uniformity (CO)	3 (maximum)	
Organics and Percent Deleterious Material	0.25 (maximum) AASHTO T21	D

f) Any and all materials not conforming to the specifications, as stated herein, can not be used in the construction of the landfill. Furthermore, any materials found to be deficient after placement or use, shall be removed and replaced with materials conforming to the specifications.

5. Quality Control/Quality Assurance

The following is the minimum quality assurance and quality control (QC/QA) procedures to be used and documented for the construction of the Block 80 hazardous waste landfill:

a) Surveying - A permanent benchmark shall be established and protected in the immediate vicinity of the landfill site.

The surveying should be on fifty (50) foot grid. The permanent benchmark shall be used as control for the initial and all subsequent surveying performed relevant to the landfill. All field log books shall be made a part of the permanent files of the facility and contain the following:

(1) Surveyor's full name and Louisiana registration number.

(2) Date and reason for survey

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(3) Reference or book number and description of field book content.

(4) Surveyed control must be used for, but not limited to, verification of the following:

i) Location of the exterior dike system and general confiner of the Block 80 hazardous waste landfill;

ii) Excavation associated with the construction of the landfill.

iii) Thickness of the recompacted clay liners to be constructed as a part of the lining systems used in the construction of the landfill.

iv) Height and slope of the exterior dike system.

v) Location and elevation of the leachate collection and leak detection sumps and associated riser pipes.

vi) Location of sites for QA/QC testing, i.e., density and permeability testing of the recompacted clay liner. Areas of sampling for destructive testing of the geomembranes, geonets and geotextiles used in the lining systems for this landfill.

vii) Location of repairs to lining systems.

viii) Preparation of the "as built' plans.

b) The following is the minimum QA/QC sampling and testing to be performed for the construction of the recompacted clay liners to be used in the construction of the landfill:

(1) Classification tests:

i) Atterberg Limits (ASTM D-4318) shall be determined on the clay soils delivered to the site at the frequency of one (1) per 1000 cubic yards.

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ii) Percent Passing the No. 200 (ASTM D-698) on delivered clay soils at the frequency of one (1) per 1000 cubic yards.

(2) Recompacted Clay Liner Placement:

i) During periods of active placement and compaction of the clay soils, the field moisture content of the clay soils is to be determined at a minimum of two (2) times daily.

ii) The clay soils shall be continuously visually inspected for clod seye (eight (8) inch minimum), roots, sticks or other extraneous materials.

iii) In-place density of the recompacted clay soils shall be not less than one (1) test per 6000 square feet per lift. Areas failing the density requirements shall be scarified, recompacted and tested until the area meets specification requirements.

iv) Atterberg Limits and percent passing the No. 2000 sieve are to be performed on twenty-five percent (25%) of the areas where density testing is accomplished.

v) Laboratory permeability tests (falling head) shall be performed on a minimum of two (2) core samples obtained at every 20th site of in-place density testing or six (6) per lift which ever generates the most tests. Areas failing permeability requirements shall be scarified, recompacted and tested until the area meets specification requirements.

vi) A new density compaction curve shall be developed after each forty (40) field density tests.

vii) All penetrations into the recompacted clay liner for sampling and testing are to be repaired in such a manner as to preserve the integrity of the liner.

c) The following is the minimum QA/QC sampling and testing to be performed for

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the construction of the recompacted clay exterior dike system of the landfill.

(1) Classification tests: These tests and frequency of testing shall be the same as stated for the recompacted clay liners. 1C., B.6.b.1)i) & B.6.b.1)ii).

(2) Recompacted clay soils for exterior dike system:

i) Field Moisture Content - same as B.6.b.2)i).

ii) Visual Inspection of Soils - same as B.6.b.2)ii)

iii) In-place density of the recompacted clay of the dike system shall be one (1) per 200 lunar feet of constructed dike per lift.

iv) Atterberg Limits and Percent Passure the No. 200 Sieve - same as B.6.b.2)iv).

v) Laboratory Permeability Tests - same as B.6.b.2)v).

vi) The new density compaction curve - same as B.6.b.2)vi). However, if the dike system construction is simultaneous to the recompacted clay liner construction; the same derived density curve may apply to both efforts.

vii) Penetration of the dike soils - same as B.6.b.2)vii).

d) The following is the minimum QA/QC sampling and testing to be performed for the construction and installation of the high density polyethylene liners for the landfill.

(1) Verification: upon delivery of the rolled membrane material, the rolls are to be inspected to verify the materials conformance to specifications, i.e. make, type, thickness, weight, roll number, etc.

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Samples that are 12" x 12" shall be obtained from each shipment in accordance with ASTM D-4354.

Each sample must be identified and marked with all applicable data and stored at the field laboratory.

A similar sample shall be submitted to the main laboratory. After testing and verification of conformance, the roll tag shall be marked as pass of fail. Failing rolls must be removed from the active area construction.

(2) Roll testing: the following is the minimum testing to be performed on all rolls of geomembrane delivered:

i) Thickness of each roll shall be determined using a calibrated micrometer read to 0.001 inch. If a failure of the thickness requirement is detected, the inspector shall immediately recheck the thickness at a minimum of five (5) additional points. The roll shall pass if the initial failure was less than ten percent (10%) of the specified thickness and the average of the six (6) tests meets thickness requirements.

ii) The density (ASTM D-1505) of the delivered material shall be determined on fifty percent (50%) of the samples.

iii) Volatile loss (ASTM D-1203) shall be determined on twenty percent (20%) of the samples.

(3) Membrane Placement and Seaming:

i) Prior to panel placement the surface of the area shall be inspected for conformance to specification requirement.

ii) Membrane panel overlap shall be measured at ten (10) foot (maximum) intervals along the entire length of the contact area.

iii) One-hundred percent (100%) of the area to be seamed shall be visually inspected for

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proper preparation (grinding, etc.) prior to the seaming process.

iv) Prior to the start of, and at the end of each day of seaming, test seams shall be executed on similar scrap membrane material. Test seams are required for each seaming device used.

All test seams shall be subjected to shear and peel testing (ASTM D-413, Method A or D-816, Method B). Failure of test seams will require that the failing equipment not be used until a satisfactory seam can be executed. Should failing seam test data not be available prior to the use of the failing device in the field seaming process, the seam(s) executed by the failing equipment shall be sampled at one-hundred (100) foot intervals for retesting of shear and peel. Any failure of these samples will require replacement of the entire seam with an approved seaming device.

v) Seam Testing: All field seams shall be tested along their entire length by use vacuum box. The procedure shall conform to ASTM D-4437, paragraph 7.3. Additionally,

samples of the seamed area shall be obtained every 500 feet of seam and tested for peal and shear.

All sampled areas shall patched, repaired and vacuum tested. All failing seams are to be replaced and successfully tested.

vi) All areas of destructive sampling and patching and areas of seam replacement are to be accurately documented and located on the "as-built" plans.

e) The minimum QA/QC testing and documentation for the geotextiles to be used in the construction of the lining systems for the landfill are as follows:

(1) Verification: upon delivery of the rolled geotextiles, the rolls are to be

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inspected to verify the materials conformance to specifications.

(2) Testing: 12" by 12" samples of each roll are to be obtained and tested for breaking load and elongation (ASTM D-1682) and fabric testing (ASTM D-851).

(3) Placement and seaming: The geotextiles shall be placed in such a manner that a textile seam does not coincide with a membrane seam. The textile shall be joined in such a manner as not to allow any gaps between textile panels. The use of adhesives is strictly prohibited.

f) The minimum QA/QC testing for the geonets to be used in the lining systems for the landfill are as follows:

(1) Verification - same as listed for geotextiles.

(2) Testing shall conform to the tested methods listed in the specifications for geonets.

g) All QA/QC sampling and testing is to be documented in detail and made a part of the permanent files of the facility. At a minimum this documentation must contain:

(1) Name of inspector, sampler, tester or installer.

(2) Date and time.

(3) Purpose of inspection, sample, test.

(4) Material sampled, or item inspected and/or tested.

(5) Location of sample and/or test.

(6) Test data.

7) Response(s) to failing inspection and/or test.

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(8) Any other information or data that will accurately document all QA/QC activities conducted at the facility.

(9) Final exceptance of all QA/QC work performed shall be certified by a qualified third party QA/QC engineer.

h) Written certification of conformance to the LAC 33:V.2503 will be required for: both recompacted clay liners, both geomembranes, anchor systems for membranes, textiles and nets and the exterior dike system.

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VI. GROUND WATER PROTECTION

A. APPLICABILITY

The regulations of LAC 33:V. Chapters 5, 15, 31, 33, and 35 Louisiana's Water Control Law, R.S., 30:1096D of the Environmental Quality Act, R.S., 30:1051 et seq., and the provisions of this section shall apply to ground water protection programs at Dow Chemical, located in Plaquemine, Louisiana. All requirements and conditions of this section must be satisfied and shall apply during the life of the facilities, which include compliance, closure, and post-closure care periods. The facilities are identified as the Northwest Landfill and the Block 80 Landfill.

B. REQUIRED PROGRAMS

The Permittee must continue to conduct detection monitoring from the existing systems established during interim status, as outlined in Sections VI., H., I., and J., herein, and as located on Figures 1 and 2, attached.

The Permittee must have an approved assessment plan for the chloride plume in the Chlorine Plant on file with the administrative authority within sixty (60) days of the issuance of this permit.

All wells and leachate detection points must be monitored, unless exempted from the program at a later date by the administrative authority.

C. GROUND WATER PROTECTION STANDARD

1. The Permittee must comply with conditions specified in this permit that are designed to insure that hazardous waste and hazardous waste constituents (see Section VI.D.) do not exceed the concentration limits (see Section VI.D.) in the uppermost permeable zones underlying the waste management areas beyond or below the points of compliance (see Section VI.E.) during the compliance

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period (see Section VI.F.). The protection standard does not exempt the Permittee from required corrective actions regarding contamination detected by wells not assigned as ground water compliance points.

2. The Permittee must utilize and maintain the present ground water monitoring system illustrated by Figures 1 and 2, consisting of upgradient Wells UN-1 and UN-2 for the Northwest Landfill and UH-1 for the Block 80 Landfill.

Downgradient wells are hereby specified as DN-3, DN-4, NN-5, DN-6, DN-7, and DN-8 for the Northwest Landfill and DH-2, DH-3, and DH-4 for the Block 80 Landfill.

The proposed leak detection system for the Northwest Landfill, as approved by the administrative authority (Enclosure) shall be installed within one-hundred eighty (180) days after issuance of this permit and will be identified as LD-1, LD-2, and LD-3.

All wells must be maintained so that surface infiltration is prohibited and ground water samples are generated with a water quality of five (5) or less nephelometric turbidity units (N.T.U.). If turbidity in ground water samples is attributable to natural hydrogeological conditions peculiar to the screened zone, and a water clarity of five (5) units is not achievable, the Permittee must demonstrate to the satisfaction of the administrative authority that turbidity of the water samples will not compromise the validity of the analyses.

3. The Permittee must adhere to the sampling and analysis plan outlined below:

a) All wells must be sampled semiannually (after the hazardous constituent background has been established), as required under Section VI.C.3.e., and the test results submitted to the administrative authority within fifteen

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(15) days from completion of all analyses and analytical review by the Permittee.

b) All wells must be measured for total depth (for wells with in-place pumps which prohibit total depth measurement, total depth must be measured annually) and depth to water on the same day and prior to purging.

Measurements must be to the nearest .01 foot, and

the values must be recorded in the field notebook, see Section VI.C.3.g) and reproduced and submitted in the Ground Water Annual Report in accordance with LAC 33:V.1529.D.

If ten percent (10%) of the screened interval is blocked by sediments, the well must be redeveloped prior to the next required sampling event.

c) Each well must be purged by evacuation to dryness or by removing a minimum of three (3) casing volumes.

The well must be sampled immediately upon purging and/or when sufficient water for sampling has recharged the well. Purging and sampling methods must be consistent throughout the life of the facility.

d) Samples must be withdrawn using dedicated or adequately cleaned equipment for each well. No equipment or method may be used that will chemically alter or influence the sample. Sampling devices other than bailers must be approved by the administrative authority prior to use in monitoring or corrective action programs. Care must be taken to avoid placing clean sampling equipment on the ground or on any contaminated surface. Sampling methods and equipment must be consistent throughout the life of the facility.

e) Sample preservation, handling and containerization must meet the specifications of the LAC and Test Methods for Evaluating Solid Waste

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Physical/Chemical Methods 3rd Ed. (EPA SW-846), 1986, as revised, or an equivalent substitute as approved by the administrative authority. Containers, preservation, and analytical limits are listed below:

TABLE 3A

Northwest Landfill

Parameter	Container Type	Preservation Method	Method Detection Limit, PPM
Mercury	Plastic	Filtered (.45 micron) Acidify to pH >2 with HNO_3	.0002
Chromium	Plastic	Filtered (.45 micron) Acidify to pH >2 with HNO_3	.010
Benzene	Glass	Zero Headspace Cool to 4°C	.005
Carbon Tetrachloride	Glass	Zero Headspace Cool to 4°C	.005
Perchloroethylene	Glass	Zero Headspace Cool to 4°C	.005
Hexachlorobutadiene	Glass	Cool to 4°C	.010

TABLE 3A (continued)

Northwest Landfill

Parameter	Container Type	Preservation Method	Method Detection Limit, PPM
Hexachloroethane	Glass	Cool to 4°C	.010
Hexachlorobenzene	Glass	Cool to 4°C	.010
pH	Glass/Plastic	Field Measurement	N/A
Specific	Glass/Plastic	Field Measurement	N/A

Conductance

TABLE 3B

Block 80 Landfill

Parameter	Container Type	Preservation Method	Method Detection Limit, PPM
Arsenic	Plastic	Filtered (.45 micron) Acidify to pH >2 with HNO_3	.010
Barium	Plastic	Filtered (.45 micron) Acidify to pH >2 with HNO_3	.200
Cadmium	Plastic	Filtered (.45 micron) Acidify to pH >2 with HNO_3	.005
Chromium	Plastic	Filtered (.45 micron) Acidify to pH >2 with HNO_3	.010
Selenium	Plastic	Filtered (.45 micron) Acidify to pH >2 with HNO_3	.005

TABLE 3B (continued)

Block 80 Landfill

Parameter	Container Type	Preservation Method	Method Detection Limit, PPM
Antimony	Plastic	Filtered (.45 micron) Acidify to pH >2 with HNO_3	.060
Lead	Plastic	Filtered (.45 micron) Acidify to pH >2 with HNO_3	.005
Mercury	Plastic	Filtered (.45 micron) Acidify to pH >2 with HNO_3	.0002
Manganese	Plastic	Filtered (.45 micron) Acidify to pH >2 with HNO_3	.015
Copper	Plastic	Filtered (.45 micron) Acidify to pH >2 with HNO_3	.025
Zinc	Plastic	Filtered (.45 micron) Acidify to pH >2 with HNO_3	.020
Iron	Plastic	Filtered (.45 micron) Acidify to pH >2 with HNO_3	.100
Chloride	Glass/Plastic	Cool to $4^{o}C$	0.1
pH	Glass/Plastic	Field Measurement	N/A
Specific Conductance	Glass/Plastic	Field Measurement	N/A

f) Analytical methods equivalent to SW-846 (or analyses for parameters not listed in

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SW-846) must be approved by the administrative authority prior to implementation.

g) A chain of custody protocol must be employed that will allow for the tracing of possession and handling of samples from the time of collection through laboratory analysis.

All sample containers must be labeled to prevent mis-identification, have proper seals, and indicate the test parameters required.

h) An up-to-date field log book must be kept at the site which documents for each sample the well identification number, measured total well depth,

water level,

water color (visual),

well evacuation procedures and equipment,

sample withdrawal procedures and equipment,

date,

time,

sample identification numbers,

field measurements (pH, specific conductance, etc.) and methods,

name of collector,

field observations,

calculations of the standing water volume in the well, and the

total volume evacuated.

4. The Leachate Monitoring Systems which include one (1) collection system for the Block 80 Landfill and two (2) detection systems for the Block 80 and Northwest Landfills must be maintained such that a

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method to secur samples from an accessible surface location is provided in good working order at all times.

The collection system for the Block 80 Landfill must contain self-activating pumps which are capable of keeping the cell virtually free of leachate at all times.

The leachate collection system for the Block 80 Landfill shall be sampled semi-annually for the constituents listed in Table 4B and annually for Volatile and Base Neutral compounds (Methods 624 and 625).

The leachate detection system for the Block 80 Landfill shall be sampled semi-annually for the constituents listed in Table 4B and annually for Volatile and Base Neutral compounds (Methods 624 and 625). The leachate detection points LD-1, LD-2, and LD-3 shall be sampled semi-annually for Volatile and Base Neutral compounds for the first three (3) years after issuance of this permit and annually, thereafter.

All analytical results must be submitted semi-annually.

Gallons of leachate removed must be reported with the semi-annual report.

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D. HAZARDOUS CONSTITUENTS, PARAMETERS AND CONCENTRATION LIMITS

The hazardous constituents and concentration limits to which the protection standard of LAC 33:V.3305 apply are:

Constituents	Concentration Limit, PPM
Benzene	.005
Carbon Tetrachloride	.005
Perchloroethylene	.005
Hexachlorobutadiene	.010
Hexachloroethane	.010
Hexachlorobenzene	.010
Arsenic	.2
Barium	1.0
Cadmium	.01
Chromium	.05
Selenium	.01
Antimony	.06
Lead	.05
Mercury	.002
Manganese	1.0
Copper	1.0
Zinc	5.0
Iron	25
Chloride	250

The Permittee shall institute corrective actions in all areas where ground water has been affected by hazardous waste constituents or parameters exceeding the assigned concentration limits, and in other areas which may be discovered to exceed these limits in the future.

The Permittee shall notify the administrative authority in accordance with Section VI.I. of this permit within seven (7) days after confirmation of the presence of any constituent equal to or exceeding the concentration limits authorized above.

E. POINT OF COMPLIANCE

The point of compliance at which the ground water protection standard of LAC 33:V.3305.A applies, and at which monitoring must be conducted is the vertical interval intercepted by the well screens identified by numbers UN-1, UN-2, DN-3, DN-4, NN-5, DN-6, DN-7, and DN-8 for the Northwest Landfill and

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numbers UH-1, DH-2, DH-3, and DH-4 for the Block 80 Landfill. When contamination is detected in the existing compliance zone, then the next vertical permeable zone must also be monitored during the compliance period. In the event that there are no suitable permeable zones for monitoring below the lower limits of contamination that are discovered, the Permittee must demonstrate, to the satisfaction of the administrative authority, that soil types, textures, and conditions for thirty (30) vertical feet below the lower extent of contamination would prohibit the downward migration of contaminants.

The demonstration must include a certified geotechnical report on lithology, contaminant behavior, and conclusive analytical soil investigations for at least thirty (30) feet below the lowest limit of contamination.

The horizontal limit of compliance shall be the surface following an imaginary line connecting the risers of the above referenced detection monitoring wells.

Ground water quality at each monitoring well identified above shall be determined semiannually, unless contamination has been detected, then monitoring must be conducted quarterly.

F. COMPLIANCE PERIOD

The compliance period during which the ground water protection standard of LAC 33:V.3305 applies is the active life of the regulated units, and ends when clean closure is achieved or, after a corrective action program has been implemented, and the Permittee has demonstrated that the corrective action has been effective and the ground water protection standard of LAC 33:V.3305 has not been exceeded for a period of three (3) consecutive years.

The Permittee shall determine ground water quality in the uppermost permeable

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zone throughout the active life of the facility plus thirty (30) years for any post-closure care monitoring, or as required by the administrative authority.

G. GENERAL REQUIREMENTS

1. The Permittee's ground water monitoring system for the previously identified hazardous waste management facilities shall consist of wells identified on Figures 1 and 2 which are monitoring wells UN-1, UN-2, DN-3, DN-4, NN-5, DN-6, DN-7, and DN-8 and leak detection points LD-1, LD-2, and LD-3 for the Northwest Landfill and wells UH-1, DH-2, DH-3 and DH-4 for the Block 80 Landfill, unless exempted in the future by the administrative authority.

2. Upgradient wells UN-1, UN-2, and UH-1 must always yield ground water samples from the uppermost water bearing zone that are representative of ground water that has not been affected by possible leakage from the waste management units. Downgradient wells DN-3, DN-4, NN-5, DN-6, DN-7, DN-8, DH-2, DH-3, and DH-4 must yield ground water samples from the uppermost water bearing zone that represent the quality of ground water beneath the facilities that reach points of compliance. Sampling points LD-1, LD-2, and LD-3 must be utilized in the leak detection system as provided in Section VI.C.4.

3. The Permittee must maintain the structural and mechanical integrity of all wells and provide protection from accidental damage and surface infiltration and implement a monitoring well inspection schedule.

4. The Permittee must conform to the sampling and analysis requirements listed elsewhere herein and as required by LAC 33:V.3305.C. A ground water surface potentiometric map must be prepared each time ground water is sampled.

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5. The Permittee must use the statistical procedure outlined in LAC 33:V.3315 (Cochran's Approximation to the Behrens-Fisher Students' t-test) in determining whether background values or concentrations have been exceeded for the parameters identified in Section VI.H., herein. The Permittee shall be allowed to propose an equivalent statistical method, with supporting documentation, which must be approved by the administrative authority prior to implementation.

6. The Permittee must also graphically represent the values of pH and specific conductance for each sampling episode. The graphic interpretations of data must be submitted with the analytical results in the annual report and should be utilized in concert in all evaluations pertaining to facility impact on ground water.

7. Records of all sampling and analytical work must be maintained at the plant site during the life of the facilities, including post-closure care periods.

8. An annual ground water report must be submitted each year no later than March 1, as required by LAC 33:V.1529. This report shall summarize all ground water activities for the preceding calendar year including an evaluation of the monitoring strategy in relation to the direction of ground water flow and locations of wells associated with the facilities. Applicable calculations must also include ground water and contaminant migration flow rates and statistical comparisons, and other information as regards corrective actions required by this permit.

H. DETECTION MONITORING PROGRAM

1. The Permittee must utilize the existing ground water detection monitoring system as required by LAC 33:V.3315 to obtain samples that provide a reliable indication of the presence of hazardous

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wastes or constituents in ground water when compared to background values.

2. The system shall be sampled semiannually for the detection program. Within fifteen (15) days after completing the analytical work and review of analyses and computations, the Permittee shall submit a report to the administrative authority containing the test results, the statistical comparative data, and ground water potentiometric maps for that sampling event. Copies of the field log book notes and chain of custody where appropriate, and a list of the parameters that were statistically significant or exceeded drinking water standards must also be forwarded for review by the administrative authority.

3. The sampling and analysis program outlined in Section VI.C.3. must be utilized for ground water sampling.

4. If the Permittee determines that there are statistically or otherwise significant changes in parameters, constituent measurements, or concentrations in any monitoring well, the Permittee must notify the administrative authority of this finding in writing within seven (7) days after receipt and evaluation of the analytical results. The notification must identify those parameters that have shown the significant changes. The Permittee must also immediately resample within thirty (30) days to confirm the findings. If the resampling effort confirms that an impact to ground water has occurred, the Permittee must submit an application for a permit modification to the administrative authority within ninety (90) days from the date of the resampling effort. The application must include a plan certified by a geologist or geotechnical engineer for a ground water quality assessment and search for additional hazardous wastes or constituents that could reasonably be expected to be associated with facility operations as listed in Table 1, LAC

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33:V. Chapter 31 as amended and shall include the identification and evaluation of all compounds appearing on the analytical chromatograph. The plan must also incorporate schedules for the institution of compliance monitoring programs and corrective actions, as applicable, to meet requirements of LAC 33:V. Chapter 33.

5. If the Permittee determines that the ground water protection standard of Section VI.D is being exceeded in any monitoring well, he may demonstrate within thirty (30) days of the determination that a source other than a regulated unit caused the increase or that the increase resulted from an error in sampling, analysis, or evaluation. The Permittee must investigate and correct all confirmed ground water contamination problems at the direction of the administrative authority and as stipulated under Section VI.D. of this permit, regardless of the source of contamination.

6. Upon determination that the detection monitoring program no longer satisfies the requirements of this Chapter, the Permittee shall submit an application for a permit modification to the administrative authority within ninety (90) days.

I. COMPLIANCE MONITORING

The Permittee shall establish a compliance monitoring program in accordance with LAC 33:V.3319 whenever hazardous constituents are confirmed in any monitor well.

1. The Permittee shall determine the concentration of each hazardous constituent listed in VI.D. at least quarterly during compliance monitoring periods until this requirement is terminated in writing by the administrative authority.

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2. If the Permittee determines, pursuant to LAC 3:V. 3319.H that the ground water protection standard is being exceeded at any monitoring well at the point of compliance, he must:

a) Notify the administrative authority of this finding in writing within seven (7) days. The notification must indicate which concentration limits have been exceeded; and

b) Submit, to the administrative authority, an application for a permit modification to establish or modify corrective action programs meeting the requirements of LAC 33:V.3321 within 180 days, or within ninety (90) days if an engineering feasibility study has been previously submitted to the administrative authority under LAC 33:V.3317.H.5. The application must include the following information:

(1) A detailed description and schedule for corrective actions that will achieve compliance with the ground water protection standard specified in the permit under LAC 33:V.3319.A; and

(2) Certified geotechnical plans for a ground water monitoring program that will demonstrate the effectiveness of the corrective action. Such a ground water monitoring program may be based on a compliance monitoring program developed to meet the requirements of this permit, except that the Permittee will be required to monitor as frequently as necessary by the administrative authority in order to generate sufficient data for demonstrating the effectiveness of the corrective actions.

(3) A plan to extend the compliance points both vertically and horizontally, unless this requirement is terminated in writing by the administrative authority.

3. The Permittee shall evaluate all compliance monitoring wells identified in Section VI.E., herein, for the presence of all constituents listed in Table 1 LAC

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33:V. Chapter 31, for which there are reliable test methods and that may be expected to be associated with facility operations, on an annual basis. The Permittee shall also be required to identify, quantify, evaluate, and report all compounds appearing on the sample analytical chromatographs, that are detected at the method detection limits of the equipment and that may represent fugitive compounds associated with facility operations, regardless of whether or not the substances are identified in Table 1, LAC 33:V. Chapter 31 and the results must be included in the annual report.

J. CORRECTIVE ACTION PROGRAM

1. The owner or operator must conduct a corrective action program to remove or treat in place any hazardous constituents in the ground water that exceed concentration limits between the compliance point and the downgradient facility property boundary.

2. The Permittee must implement the assessment plan for the chloride plume in the Chlorine Plant area on file with the administrative authority within sixty (60) days after the issuance of this permit and implement a corrective action or mitigation program within sixty (60) days after conclusion of the assessment phase.

3. Additionally, and in accordance with the authority of R.S., 30:1096D of the Louisiana's Water Control Law and the Environmental Quality Act, R.S., 30:1051 et seq., as a condition of this permit, the Permittee must notify the administrative authority upon learning of the discharge of any waste or substance into the ground waters of the State at the Dow Chemical plant site. As a result of such discharges to ground waters the Permittee shall:

a) Notify the administrative authority of the nature and circumstances of the

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discharge within seven (7) days of discovery.

b) Submit adequate plans and schedules, certified by a qualified geologist or geotechnical engineer to evaluate the extent of the discharge and need for corrective actions within ninety (90) days from the notification in Section VI.J.3.a.) above.

c) Submit a schedule and plans for corrective actions as directed by the administrative authority, within sixty (60) days from completion of the ground water evaluation in Section VI.J.3.b.) above.

K. ABANDONMENT OF MONITORING WELLS

The Permittee shall provide for the sealing of any vertical migration path resulting from exploratory borings and/or monitoring programs as provided in LAC 33:V.3323 or follow abandonment procedures as directed by the administrative authority.

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Mr. Michael Nevill
Environmental Services Manager
Dow Chemical, USA
Post Office Box 150
Plaquemine, Louisiana 70765-0150

RE: Proposed Installation of Leak Detection Points
Northwest Landfill
(LAD008187080)

Dear Mr. Nevill:

The Department hereby approves of the proposed locations of the shallow leak detection wells at the Northwest Landfill, as discussed with Ms. Elizabeth Simpson on December 1, 1987.

If you have any questions, please call the Ground Water Protection Division at (504) 342-8950.

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VII. SPECIAL CONDITIONS PURSUANT TO THE 1984 HAZARDOUS AND SOLID WASTE AMENDMENTS OF RCRA

A. SPECIFIC CONDITIONS

1. Permitted Process Units.

2. Waste Minimization.

The Permittee shall certify (Attachment A) annually by October 1, for the previous year ending August 31, that:

a) the Permittee has a program in place to reduce the volume and toxicity of all hazardous wastes that are generated by the Permittee's facility's operation to the degree determined to be economically practicable, and

b) the proposed method of treatment, storage, or disposal is that practicable method currently available to the Permittee which minimizes the present and future threat to human health and the environment.

The certification is to be included in the operating record.

3. Dust Suppression.

As stated in 40 CFR 266.23(b), the Permittee shall not use waste or used oil or other material, which is contaminated with dioxin or any other hazardous waste (other than a waste identified solely on the basis of ignitability), for dust suppression or road treatment.

4. Solid Waste Management Units.

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The Permittee shall immediately notify the administrative authority of any release of hazardous waste or hazardous constituents that may have occurred from any Solid Waste Management Unit (SWMU) at the facility regardless of when the release occurred or may have occurred, and regardless of when the waste was place in any unit. Release occurring from any SWMU will constitute grounds for a major permit modification as necessary to incorporate into the permit appropriate corrective action, or other actions as deemed necessary by the administrative authority. Pursuant to such permit modification, the Permittee shall then take timely corrective action for such releases. Also, if the Permittee becomes aware of any SWMU not addressed in the RCRA facility assessment, the Permittee must: a) immediately notify the administrative authority, and b) submit within forty-five (45) days of becoming aware of a solid waste management unit, sufficient information to conduct a RCRA facility assessment of the solid waste management unit to determine if there has been or is currently a release from the unit. The Permittee is to contact the administrative authority for guidance regarding the required information to be submitted. Based upon this information, the administrative authority			

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will modify the permit accordingly.

5. Definitions.

a) Release - any spilling, leaking, pumping, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing into the environment.

b) Solid waste management unit - "any discernible solid waste unit at a RCRA facility from which hazardous wastes or constituents might migrate, irrespective of whether the unit was intended for the management of solid and/or hazardous waste" (USEPA, 1986). The SWMUs definition includes container storage units; tanks; surface impoundments; waste piles; land treatment units; landfills; incinerators; underground injection wells; physical, chemical, and biological treatment units; recycling units; and areas contaminated by routine, systematic, and deliberate discharges from process areas.

B. SURFACE IMPOUNDMENT SPECIFIC CONDITIONS

1. Closure.

After November 8, 1988, the Permittee shall not place hazardous and/or non-hazardous waste in any surface impoundment. The Permittee shall close the all surface impoundment in accordance with the Closure Plan conditions in the RCRA permit. The Permittee

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shall notify the administrative authority in writing of the intent to close the said surface impoundment no later than 30 days prior to the last volume of waste received in the surface impoundment.

2. Specific Waste Ban.

The Permittee shall not place any hazardous waste restricted by 40 CFR 268 into the surface impoundment unless:

a) the waste meets treatment standards specified in 40 CFR 268.40, .41, .42 or .43;

b) a variance from the treatment standards has been granted pursuant to 40 CFR 268.44;

c) a petition has been granted for a case-by-case extension to the effective date, pursuant to 40 CFR 268.5;

d) a "no-migration" petition has been granted pursuant to 40 CFR 268.6; or

e) the surface impoundment is exempt under 40 CFR 268.4.

C. CORRECTIVE ACTION CONDITIONS FOR RELEASES AT SOLID WASTE MANAGEMENT UNITS

1. Assessment/Analysis Plan.

The administrative authority has determined that additional solid waste management units exist at the facility which receive, have received, or have the potential for receiving hazardous waste and/or hazardous constituents. These additional solid waste management units, included in

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Section VII.C.1.a., have been identified as having the potential to release hazardous waste or constituents to the air, soil, surface water, or ground water but for which a release is unconfirmed. The Permittee shall submit to the administrative authority an assessment/analysis plan that will describe the methods and provide a schedule (if necessary) that the Permittee will use to clearly confirm the presence or absence of a release.

a) An assessment/analysis plan, as described in Section VII.C.1., shall be submitted for each of the following units within sixty (60) days after the effective date of this permit.

It should be noted that only SWMU's with suspected releases or information deficiencies were listed in Section VII.C.1.a. and the list did not contain of any RCRA unit regulated under the permitting process (but does include exempted units).

b) Any revisions to the plans shall be as specified by the administrative authority and resubmitted by the dates specified by the administrative authority.

c) After the plans have been revised to the administrative authority's satisfaction, the Permittee shall implement the plans and submit documentation to verify the presence or absence of releases according to the

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schedule specified by the administrative authority.

d) If the Permittee becomes aware of any additional solid waste management unit(s) that have potential to release hazardous waste or hazardous waste constituents other than those identified and addressed during the RCRA Facility Assessment process the Permittee must:

(1) Immediately notify the administrative authority.

(2) Submit within sixty (60) days of becoming aware of any additional solid waste management units an assessment/analysis plan in accordance with Section VII.C.1.

(3) Comply with Section VII.C.2. upon discovery of a release.

2. Remedial Investigation Plan.

For each unit from which a release has been determined, a Remedial Investigation Plan that describes the methods and schedules the Permittee will use for defining the nature and extent of contamination from releases of all hazardous wastes or hazardous constituents to the air, soil, surface waters, ground waters, and/or subsurface gas shall be submitted to the administrative authority within sixty (60) days of submittal of the

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documentation required by Section VII.C.1.c.			
a) At the time of submission of the plan required by Section VII.C.2., all available information regarding the release and information regarding an assessment of the release shall also be submitted. The Permittee shall contact the administrative authority in writing for guidance regarding the required information to be submitted. Based on this information, the administrative authority will modify this permit as necessary pursuant to CFR Part 270.41.			
b) A Remedial Investigation Plan outlining the methods and schedules that the Permittee will use to determine the nature and extent of contamination from hazardous waste or hazardous constituents in the air, soil, and surface water shall be submitted for each of the following solid waste management units within sixty (60) days after the effective date of this permit.			
c) Any revisions to the Plans shall be as specified by the administrative authority and resubmitted by the dates specified by the administrative authority. The Permittee shall also submit additional information on ground water monitoring and/or perform additional ground water monitoring as specified by the administrative authority.			

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d) After the Remedial Investigation Plans have been revised to the administrative authority's satisfaction, the Permittee shall implement the Plans according to the schedules specified by the administrative authority.

3. Corrective Action Plan.

Within ninety (90) days of completion of the remedial investigation done in accordance with Section VII.C.2., the Permittee shall submit for approval to the administrative authority a corrective action plan which outlines the corrective actions, if any, to be taken at each unit. The plans must include a description of the proposed corrective measures and the methodology's effectiveness in relationship to the hazardous waste or hazardous constituents, a schedule of implementation, and a cost estimate for the corrective action at each unit.

All data should be summarized and presented in an appropriate format.

a) Any revisions to the corrective action plans shall be as specified by the administrative authority and resubmitted by the dates specified by the administrative authority.

4. SCHEDULES OF COMPLIANCE

All plans shall contain time schedules for completion including interim milestones. The time between interim milestones shall not exceed one year.

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If the time necessary for completion of any interim activity is more than one year and is not readily divisible into stages for completion, the schedule shall specify interim dates for the submission of reports of progress toward completion of the interim requirements.

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 dates as required by 40 CFR Section 270.30(1)(5).

5. PERMIT MODIFICATION

This permit will be modified pursuant to 40 CFR Section 270.41 to incorporate the Corrective Action Plans developed under Section VII.C.3 and financial assurance for corrective action as required under 40 CFR Section 264.101 (Amendments to 40 CFR, July 15, 1985, 50 Federal Register 28747).

TABLE 3
WASTE STREAM COMPOSITIONS

EPA WASTE NUMBER	ANALYSISa
F024	Carbon Tetrachloride - 10-35% Dichloropropane - 30-50% 1,1,2-Trichloroethane - 5-30%

	Tetrachloroethane - 5-30% Miscellaneous -0-1%
K019	1,2-Dichloroethane - 10-50% 1,1,2-Trichloroethane - 10-50% Tetrachloroethane - 5-50% Penta - 0.5-5% Chloroethane - 0-2%
K030	Hexachloroethane - 10-40%
K016	Hexachlorobutadiene - 5-20% Hexachlorobenzene - 30-70% Perchloroethylene - 5-20%
K073	Liquid Chlorine - 30-70% Carbon Tetrachloride - 30-70% Hexachloroethane - 0-0% Hexachlorobutadiene - 0-0.1%

[a] Method 5030 (GC) - SW846

3. Vinyl II

TABLE 4

T-400	T-420	S-231	VCM VENTS	LAB WASTE
1,2-Dichloroethane[a]	15%	60%	5%	50%
Carbon Tetrachloride	--	13%	7%	15%
1,1-Dichloroethane	--	3.5%	2%	
Chloroform	--	1.3%	32%	5%
Trichloroethylene	--	0.3%	--	
Ethyl Chloride	--	1.2%	35%	
Vinyl Chloride	--	5.0%	0.5%	40%
1,1,2-Trichloroethane	30%	--	--	
Pentachloroethane	7%	--	--	5%
Chlorinated Propenes	15%	--	--	5%
Chlorinated Butenes	15%	--	--	5%
Tetrachloroethane	2%	--	--	5%
Chlorobenzene	1.5%	--	--	
Vinylidene Chloride	--	--	0.5%	
trans-Dichloroethylene	--	--	12%	
cis-Dichloroethylene	--	--	6%	
Carbon (NVM) & Unknown	14.5%	15.7%	--	
HCl	--	--	--	30%
Nitrogen	--	--	-- 30%	10%
Oil			1%	
Ash[d]	.1%	.1%	.1%[e]	.1%[e] .1%[e]

DO 143654
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Please note:

Some attachments provided by Dow have not been included in this copy

Thank you
KDF:B