



Planning Research Corporation

PRC Engineering
Suite 600
303 East Wacker Drive
Chicago, IL 60601
312-938-0300
TWX 910-2215112
Cable CONTOWENG

October 30, 1986

Ms. Melissa Guise
DOW CHEMICAL, U.S.A.
Louisiana Division
P.O. Box 150
Plaquemine, LA 70765-0150

Dear Ms. Guise:

In accordance with your request, we are sending you a copy of the documents that you submitted to us on August 27, 1986.

Thank you for your cooperation in our LOIS Inspection.

Sincerely,

PRC Environmental Management, Inc.

A handwritten signature in cursive script, appearing to read "Shin Ahn".

Shin Ahn

SA/klb

Enclosure

DO 143904
CONFIDENTIAL



DOW CHEMICAL U.S.A.

August 27, 1986

LOUISIANA DIVISION
P. O. BOX 150
PLAQUEMINE, LOUISIANA 70765-0150
504 388-8000

FEDERAL EXPRESS

PRC ENVIRONMENTAL
MANAGEMENT, INC.

PRC Engineering
303 East Wecker Drive
Suite 600
Chicago, Illinois 60601

8 28 1986

Dear Mr. Ahn and Ms. Yanada:

On August 25, 1986, PRC Engineering, contractors for the EPA Region VI, conducted a "lost interim status inspection" at the Louisiana Division of Dow Chemical. Below is a list of additional information which was requested. This information is included in the referenced attachments:

1. Louisiana Division RCRA Hazardous Waste Permit (Attachment 1)
2. Louisiana Division RCRA Hazardous Waste Financial Responsibility (Attachment 2)
3. Potentiometric Maps for Chlorinated Polyethylene Surface Impoundment (Attachment 3)
4. 1985 RCRA Compliance Inspection conducted by PRC Engineering (Attachment 4)
5. Operating and Process Information on RCRA Units (Attachment 5)
6. Solid Waste Management Units Map (Attachment 6)
7. Subsurface Water Control Map (Attachment 7)
8. Operating Logs for RCRA Facilities (currently being compiled. Will be sent later.

If you have any questions regarding this information or need additional information, please do not hesitate to contact us.

Sincerely,

Melissa Guise
Environmental Services

Charles Goldsmith
Environmental Services

Attachments
sb

LOUISIANA DIVISION RCRA HAZARDOUS WASTE PERMIT

ATTACHMENT 1

DO 143906
CONFIDENTIAL



(1)
DOW CHEMICAL U.S.A.

October 30, 1985

LOUISIANA DIVISION
P. O. BOX 180
PLAQUEMINE LOUISIANA 70765-0180
804 389-8000

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mr. Glenn A. Miller, Administrator
Hazardous Waste Division
Office of Solid and Hazardous Waste
Louisiana Department of Environmental Quality
P. O. Box 44307
Baton Rouge, Louisiana 70804

PART I HAZARDOUS WASTE PERMIT APPLICATION UPDATE
DOW CHEMICAL U.S.A., LOUISIANA DIVISION, PLAQUEMINE PLANT SITE
LAD008187080

Dear Mr. Miller:

We are submitting several revisions to our Part I Permit Application. The revisions primarily are made to update the Part I to be consistent with Part II (original and deficiency correction) material submitted.

Five sets of revisions are submitted in addition to the set attached to this letter. The additional sets are provided as replacement pages for the Part I/Part II Hazardous Waste Permit Application, Volume I-B, Exhibit 4.

The revisions are explained below. Revised pages are submitted as noted.

1. Section A, Item 9

The list of Louisiana Solid Waste Management Interim Permits is updated. A revised additional information page for the referenced item is included.

2. Section B, Item 2C

Explanations of revisions now submitted are listed. Previous explanations also are corrected.

A revised Page B1 and an additional information Page B1 are submitted.

DO 143907
CONFIDENTIAL

Mr. Glenn Miller
LDEQ
October 30, 1985
Page 2

3. Section B, Item 3

For the Solvents Plant Tanks (SO2), the process design capacity has been corrected from 82,000 gallons to 67,000 gallons. This capacity figure is consistent with the capacities of the seven tanks covered by the Part II Permit Application in Volume V, Chapter 11. A previous Part I revision had indicated changes in tanks designated as hazardous waste storage units; Section B, Item 3 had not been corrected.

For the Environmental Operations Plant, a new hazardous waste storage tank is to be permitted and is included in Part II corrections submitted October 14, 1985. The process design capacity is thus revised from 64,000 gallons to 74,050 gallons. When available, photographs of the new tank will be submitted.

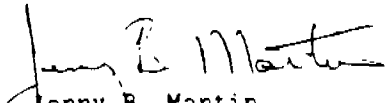
A revised Page B2 is included.

4. Section C, Item 2A

The total number of tanks (SO2) is revised from 13 to 14. A revised Page C1 is included.

If you have questions regarding any submitted material, please contact Carole Tuttle at 389-6054.

Sincerely,


Jerry P. Martin
Environmental Control Manager

sb

Attachment

DO 143908
CONFIDENTIAL

ACT 1 APPLICATION
 DOW CHEMICAL U.S.A., LOUISIANA DIVISION
 LAD00E1E7080

Item 9. Existing Environmental Permits

Louisiana Hazardous Waste Management

Interim Permit No. GD-234-12, June 17, 1981
 New GD - 11 - 1F

Louisiana Solid Waste Management

**Interim Permit No. IP-0175F, July 18, 1985
 Interim Permit No. IP-0214, October 4, 1984

Louisiana Air Emissions Permits

<u>Permit No.</u>	<u>Date</u>	<u>Plant</u>
44	12/70	Solvents
134	11/72	Poly E - Burner
160	4/73	Poly E - Train 3
161	4/73	Glycol 1
207	8/73	CFI
435	4/75	CMF - Heat Recovery
436	4/75	Vinyl 1 - Waste Heat Boiler
437	4/75	Poly E - Train 4
455	5/75	Vinyl 11
534	12/75	Dowanol
535	12/75	Ethanolamines
536	12/75	CFI
553	2/76	Cell Service
554	2/76	LEC III - Naphtha Cracker/Benz
661	12/76	Power 11 - Turbines 100/200
830	10/77	Coal Gasification Pilot Plant
10717	12/78	Glycol 1/LEC 11/Vinyl 11
1199*	6/79	Central Waste Incinerators
1251	9/79	Poly C
1280-0	11/79	Glycol 1
1574*	7/81	Power 11 - Turbines 300/400
1765T	9/82	Coal Slurry Preparation Facility
1838T	4/83	Poly E/CMF/Dowanol/Glycol 1 - Tank Bubbles
1875	9/83	Synfuels Project
1574(M1)	9/83	Power 11 - Turbines 300/400 (Modification)
1199(M1)	4/84	Central Waste Incinerators (Modification)

*See Later Modifications

**REVISED 10/30/85

DO 143909
 CONFIDENTIAL

PART I APPLICATION SECTION I

1. EPA I.D. NUMBER 1 A I 008 1 E 7 0 E 0

2. FIRST OF SUBSEQUENT APPLICATION

Place an 'X' in the appropriate box in A or B below (mark one box only) to indicate whether this is the first application you are submitting for your facility or a subsequent application. If this is your first application and you already know your facility's EPA I.D. Number, or if this is a subsequent application, enter your facility's EPA I.D. Number in Item 1 above.

A. FIRST APPLICATION (Place an 'X' below and provide the appropriate date)

☐ 1. Existing Facility (complete item below)

Provide the date (yr., mo., day) operation began or the date construction commenced.

 / /
YR. MO. DAY

☐ 2. New Facility (complete item below)

Provide the date (yr., mo., day) operation began or is expected to begin

 / /
YR. MO. DAY

B. SUBSEQUENT APPLICATION (Place an 'X' below)

- ☒ 1. Facility has Interim Status
- ☐ 2. Facility has a State Permit
- ☐ 3. Facility has a RCRA or State Part II Permit

C. REVISION (Place an 'X' below, or enter 'NA')

- ☒ Revision to Part I
- ☒ Revision to Part II

Briefly provide an explanation of the revision.

See Attachment

Does this revision constitute a major modification to the permit? ☐ Yes

☒ No

Amended 4/15/85
*Revised 10/30/85

PART 1 APPLICATION SECTION E

EPA I.D. NUMBER LAD006167080
DOW CHEMICAL U.S.A., LOUISIANA DIVISION

C. Briefly provide an explanation of the revision.

Section A, Item 9	Updated.
Section E, Item 3 - Section C, Item 2A	Revised to indicate that two additional tanks at the Solvents Plant are designated as hazardous waste storage units and one tank is removed from hazardous waste storage designation upon reevaluation of the contents.
Section E, Item 3 Section C, Item 2A - Section E, Item 9	Revised to include a proposed hazardous waste landfill.
Section C, Item 3	Revised to include additional property acquisitions.
Section E, Item 3	Container storage capacity has been recalculated
*Section E, Item 3	The process design capacity of the seven Solvents Plant storage tanks is corrected.
*Section E, Item 3 - *Section C, Item 2A	Revised to indicate that one additional new hazardous waste storage tank at the Environmental Operations Plant is to be permitted.
*Section A, Item 9	The existing environmental permits list (solid waste) is updated.

Amended 4/15/83

*Revised 10/30/85

3. **PROCESS CODE** - Enter the code from the list of process codes attached that best describes each process to be used at the facility. Ten lines are provided for entering codes. If more lines are needed, enter the code(s) in the space provided. If a process will be used that is not included in the list of codes below, then describe the process (including its design capacity) in the space provided on the form (item 3-C).

EXAMPLE FOR COMPLETING ITEM 3 (shown in lines below): A facility has two storage tanks, one tank can hold 200 gallons and the other can hold 600 gallons. The facility also has an incinerator that can burn up to 20 gallons per hour.

	PROCESS CODE	PROCESS DESIGN CAPACITY			PROCESS CODE	PROCESS DESIGN CAPACITY		
		AMOUNT	UNIT OF MEASURE			AMOUNT	UNIT OF MEASURE	
	S01	600	G		T03	4.6	D	Env. Inciner.
	T03	200	E		S02	74,050*	G	Env. Tanks
Solvents TOX	T03	2.6	D		S04	1,910,000	G	CA II Fond
Solvents Tanks	S02	67,000*	G		S04	1,600,000	G	Chloro Fond
Vinyl II TOX	T03	1.5	D		T02	1,500,000	U	CHE T
Vinyl II Tanks	S02	82,200	G		DE0	0	A	Bleed

Space for additional process codes or for describing other processes (code 'T04'). For each process entered here include design capacity.

NWLF DE1 9 A

E-80 DE0 46.5 A
HWLF

Env. Op. S01 102,000 G
Container

4. DESCRIPTION OF HAZARDOUS WASTES

- A. **EPA HAZARDOUS WASTE NUMBER** - Enter the four-digit number from LHW, Appendix A for each hazardous waste you will handle.

AMENDED 10/12/84

AMENDED 4/15/85

*REVISED 10/30/85

B2

DO 143912
CONFIDENTIAL

EPA ID NO. 1 A D C C E 1 E 7 0 E 0

1. Date of Application

84 / 5 / 21
Year Month Day

2. Activities conducted which require a TSD permit

A. STORAGE			
PROCESS	PROCESS CODE	NUMBER OF UNITS	
Container	S01	1	
Tank	S02	14	
Surface Impoundment	S04	2	
B. TREATMENT			
PROCESS	PROCESS CODE	HANDLING CODE	NUMBER OF UNITS
Incinerator	T03	T07	1
Incinerator	T03	T06	2
Surface Impoundment	T02	T44	1

REVISED 10/30/85



DOW CHEMICAL U.S.A.

October 15, 1984

LOUISIANA DIVISION
P. O. BOX 160
PLAQUEMINE, LOUISIANA 70765-0160
804 388-8000

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mr. Glenn A. Miller, Administrator
Hazardous Waste Division
Louisiana Department of Environmental Quality
P. O. Box 44066
Baton Rouge, Louisiana 70804

AMENDMENT OF PART I, HAZARDOUS WASTE PERMIT APPLICATION
DOW CHEMICAL U.S.A., LOUISIANA DIVISION
EPA I.D. No. IAD008187080

Dear Mr. Miller:

We are submitting amendments to our Part I Permit Application dated May 21, 1984. The amendments are submitted to correct water well designations on the Section A map, to denote and account for a function change of a storage tank and to list an additional waste. The amendments are made in accordance with LEWR 3.2K).

The amendments are explained below. Amended pages are submitted as noted.

1. Section A, Item 10, Map

The drinking water well identified on the map as 109 (WBR 109) is designated as plugged and abandoned on Louisiana Department of Transportation and Development (LDOTD) listings of 5/31/84. Inspection by Dow personnel confirms that the well has been abandoned. Well 109 should be deleted from the map.

The well noted as 138 (IB 138) is indicated, on the same LDOTD listings as abandoned.

DO 143914
CONFIDENTIAL

Mr. Glenn Miller
Page 2
October 15, 1984

2. Section B, Item 3 Process Code

This section is amended to reflect that one tank formerly used to store feed to a thermal oxidizer has changed function. The tank is now a storage unit for feed to a heat recovery unit.

An amended Page B2 is submitted.

3. Section C, Item 2A Storage (Activities which require a TSD Permit)

According to the amendment explained in No. 2 above, the number of tanks used for the storage of hazardous waste is changed from 13 to 12.

An amended Page C1 is submitted.

4. Section B, Item 4

This section is amended to add EPA Hazardous Waste No. F024 to our list. This waste number was added to the LEWR 24.1a) with the July 20, 1984 amendments.

An amended Page B5 is submitted.

Please contact us if you have questions.

Sincerely,



Carole K. Tuttle
Environmental Specialist

Attachment

sb

LA 08187080

3. **PROCESS CODE** - Enter the code from the list of process codes attached that best describes each process to be used at the facility. Ten lines are provided for entering codes. If more lines are needed, enter the code(s) in the space provided. If a process will be used that is not included in the list of codes below, then describe the process (including its design capacity) in the space provided on the form (item 3-C)

EXAMPLE FOR COMPLETING ITEM 3 (shown in lines below): A facility has two storage tanks, one tank can hold 200 gallons and the other can hold 400 gallons. The facility also has an incinerator that can burn up to 20 gallons per hour.

PROCESS CODE	PROCESS DESIGN CAPACITY	
	AMOUNT	UNIT OF MEASURE
S02	600	G
T03	20	E
T03	2.8	D
S02	82,000	G
T03	1.5	D
S02	45,000	G
T03	4.6	D
S02	64,000	G
S04	1,910,000	G
S04	1,600,000	G
T02	1,500,000	U
D80	0	A

Space for additional process codes or for describing other processes (code "T04"). For each process entered here include design capacity.

D80 12 A
S01 180,000 G

4. DESCRIPTION OF HAZARDOUS WASTES

- A. **EPA HAZARDOUS WASTE NUMBER** - Enter the four-digit number from LHW, Appendix A for each hazardous waste you will handle.

AMENDED 10/12/84

B2

DO 143916
CONFIDENTIAL

AD008187C8C

[illegible]

(photocopy this page before completing if needed for additional wastes)

EPA ID NO. **L A D 0 0 8 1 8 7 0 8 0**

1. Date of Application

84 / 5 / 21
Year Month Day

2. Activities conducted which require a TSD permit

A. STORAGE			
PROCESS	PROCESS CODE	NUMBER OF UNITS	
Container	S01	1	
Tank	S02	12	
Surface Impoundment	S04	2	

B. TREATMENT			
PROCESS	PROCESS CODE	HANDLING CODE	NUMBER OF UNITS
Incinerator	T03	T07	1
Incinerator	T03	T06	2
Surface Impoundment	T02	T44	1



DOW CHEMICAL U.S.A.

File

May 21, 1984

LOUISIANA DIVISION
P. O. BOX 150
PLAQUEMINE, LOUISIANA 70765-0150
504 389-8000

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mr. Gerald D. Healy, Jr.
Administrator, Hazardous Waste Division
Louisiana Department of Environmental Quality
P. O. Box 44066
Baton Rouge, Louisiana 70804

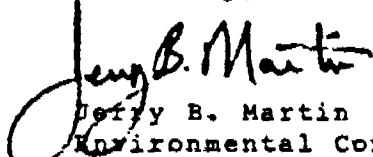
PART I PERMIT APPLICATION
DOW CHEMICAL U.S.A., LOUISIANA DIVISION - LAD008187080

Dear Mr. Healy:

We submit, with this letter, Part I of the Dow Chemical U.S.A., Louisiana Division Permit Application for units which treat, store or dispose of hazardous waste.

We have responded to each item according to our understanding of information required. Contact us if you have questions regarding the responses.

Sincerely,


Jeff B. Martin
Environmental Control Manager

sb

DO 143919
CONFIDENTIAL

LOUISIANA DIVISION RCRA HAZARDOUS WASTE
FINANCIAL RESPONSIBILITY

ATTACHMENT 2

DO 143920
CONFIDENTIAL



THE DOW CHEMICAL COMPANY

MIDLAND MICHIGAN 48674

2030 Willard H. Dow Center
April 28, 1986

"ENVIRONMENTAL CONTROL"

MAY 1 1986

Joy A. Bartholomew
Deputy Secretary
Department of Environmental Quality
Post Office Box 44066
Baton Rouge, LA 70804

Ms. Bartholomew:

Attached is the documentation in support of the use of the financial test to demonstrate financial responsibility for liability coverage and closure and post-closure care as specified in Chapter 20 of the Louisiana Hazardous Waste Management Plan (HWMP).

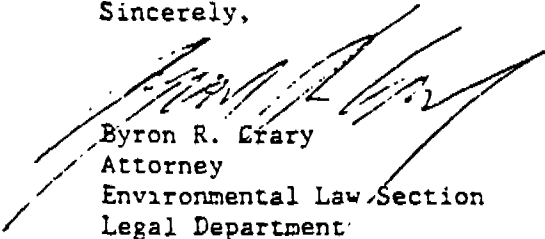
These documents reflect several changes from our prior submission due to following recent events:

- 1) The incorporation of the Health and Consumer Products Department as Dow Consumer Products, Inc., a subsidiary of The Dow Chemical Company;
- 2) The merging of the Oyster Creek Division into Texas Operations; and
- 3) The revision of closure and post-closure cost estimates, due to changes in unit operations within the facilities and to new regulatory requirements. These are denoted by an asterisk (*) in the letter from Mr. Falla.

Any questions concerning the attached documents should be directed to:

Byron R. Crary
2030 Willard H. Dow Center
Midland, MI 48674
(517) 636-2638

Sincerely,


Byron R. Crary
Attorney
Environmental Law Section
Legal Department

Attachments

DO 143921
CONFIDENTIAL

Secretary
Louisiana Department of Environmental Quality
P. O. Box 44066
Baton Rouge, LA 70804

Dear Madam:

I am the chief financial officer of The Dow Chemical Company, 2020 Building,
Midland, Michigan 48640

This letter is in support of the use of the financial test to demonstrate financial responsibility for liability coverage and closure and post-closure care as specified in Chapter 20 of the Louisiana Hazardous Waste Regulations (LHWR).

The owner or operator identified above is the owner or operator of the following facilities for which liability coverage is being demonstrated through the financial test specified in Chapter 20 of the LHWR. See Exhibit LA

The owner or operator identified above is the owner or operator of the following facilities in states other than Louisiana for which liability coverage is being demonstrated through a test equivalent or substantially equivalent to the financial test specified in Chapter 20 of the LHWR. See Exhibit Federal

1. The owner or operator identified above owns or operates the following facilities for which financial assurance for closure or post-closure care is demonstrated through the financial test specified in Chapter 20 of the LHWR. The current closure and/or post-closure cost estimates covered by the test are shown for each facility: See Exhibit 1
2. The owner or operator identified above guarantees, through the corporate guarantee specified in Chapter 20 of the LHWR, the closure and post-closure care of the following facilities owned or operated by its subsidiaries. The current cost estimates for the closure or post-closure care so guaranteed are shown for each facility: See Exhibit 2
3. In States other than Louisiana, this owner or operator is demonstrating financial assurance for the closure or post-closure care of the following facilities through the use of a test equivalent or substantially equivalent to the financial test specified in Chapter 20 of the LHWR. The current closure and/or post-closure cost estimates covered by such a test are shown for each facility: See Exhibit 3
4. The owner or operator identified above owns or operates the following hazardous waste management facilities for which financial assurance for closure or, if a disposal facility, post-closure care, is not demonstrated either to the U.S. Environmental Protection Agency or to a State through the financial test or any other financial assurance mechanism in Chapter 20 of the LHWR or equivalent or substantially equivalent State mechanisms. The current closure and/or post-closure cost estimates not covered by such financial assurance are shown for each facility: See Exhibit 4

PART B. "CLOSURE OR POST-CLOSURE CARE
AND LIABILITY COVERAGE

ALTERNATIVE I

- | | | | |
|-------|---|-----|---------|
| 1. | Sum of current closure and post-closure cost estimates (total of all cost estimates listed above) | \$ | 95.5 M |
| 2. | Amount of annual aggregate liability coverage to be demonstrated: | \$ | 15 M |
| 3. | Sum of lines 1 and 2: | \$ | 110.5 M |
| * 4. | Total liabilities (if any portion of your closure or post-closure cost estimates is included in your total liabilities, you may deduct that portion from this line and add that amount to lines 5 and 6): | \$ | 7,038 M |
| * 5. | Tangible net worth: | \$ | 4,133 M |
| * 6. | Net worth: | \$ | 4,792 M |
| * 7. | Current assets: | \$ | 4,324 M |
| * 8. | Current liabilities: | \$ | 2,975 M |
| 9. | Net working capital (line 7 minus line 8): | \$ | 1,349 M |
| * 10. | The sum of net income plus depreciation, depletion, and amortization: | \$ | 1,035 M |
| * 11. | Total assets in U.S. (required only if less than 90% of assets are located in the U.S.) | \$ | 6,197 M |
| | | YES | NO |
| 12. | Is line 5 at least \$10 million? | X | — |
| 13. | Is line 5 at least 6 times line 3? | X | — |
| 14. | Is line 9 at least 6 times line 3? | X | — |
| 15. | Are at least 90% of assets located in the U.S.? | — | X |
| 16. | Is line 11 at least 6 times line 3? | X | — |
| 17. | Is line 4 divided by line 6 less than 2.0? | X | — |
| 18. | Is line 10 divided by line 4 greater than 0.1? | X | — |
| 19. | Is line 7 divided by line 8 greater than 1.5? | — | X |

This owner or operator _____ is _____ required to file a Form 10K with the Securities and Exchange Commission (SEC) for the latest fiscal year.

The fiscal year of this owner or operator ends on December 31. The figures for the following items marked with an asterisk are derived from this owner's or operator's independently audited, year-end financial statements for the latest completed year, ended December 31, 1985.

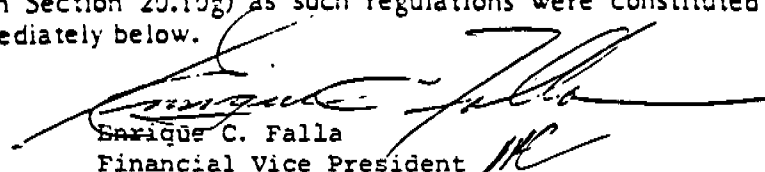
I hereby certify that the wording of this letter is identical to the wording specified in Section 20.10g) as such regulations were constituted on the date shown immediately below.

(Signature)

(Name)

(Title)

(Date)


Enrique C. Falla

Financial Vice President

April 28, 1986

EXHIBIT LA

List of Louisiana facilities for which liability assurance is being demonstrated through the financial test from Louisiana Hazardous Waste Regulations

		Sudden Insurance	Nonsudden Insurance
Facility Address	The Dow Chemical Company P.O. Box 150 Plaquemine, LA 70765		
EPA ID#	LAD008187080	\$ 5 M	\$ 10 M

Facility
Address

EPA ID#

Facility
Address

EPA ID#

Greatest Amount of Insurance for any 1 facility \$ \$ 15 M

EXHIBIT FEDERAL

List here the facilities not in Louisiana with liability assurance being demonstrated through a financial test substantially equal to the Louisiana financial test.

		Sudden Insurance	Nonsudden Insurance
Facility Address	Allyn's Point Plant Route 12 Gales Ferry, CT 06335	2 M	6 M
EPA ID#	CTD001159730		
Facility Address	The Dow Chemical Company North Haven Lab 410 Sackett Point Rd. North Haven, CT 06473	2 M	6 M
EPA ID#	CTD000635896		
Facility Address	Dalton Plant 1468 Prosser Drive, S.E. Dalton, GA 30720	2 M	6 M
EPA ID#	GAD045929643		
Facility Address	Joliet Plant P.O. Box 368 Joliet, IL 60434	2 M	6 M
EPA ID#	ILD093154599		
Facility Address	Ludington Plant S. Madison and Seventh Ludington, MI 49431	2 M	6 M
EPA ID#	MID006016919		

Greatest Total of Sudden and Nonsudden \$ 8 M

Enter on line 1 or line 2 of Part A or Part B respectively, of financial liability version the greater number of Exhibit LA or EXHIBIT FEDERAL. Do not enter the sum of LA and Federal.

EXHIBIT FEDERAL

(Continued)

		Sudden Insurance	Nonsudden Insurance
Facility Address	Midland Plant 628 Bldg. Midland, MI 48640	2 M	6 M
EPA ID#	MID000724724		
Facility Address	Salzburg Landfill Salzburg & Waldo Roads Midland, MI 48640	2 M	6 M
EPA ID#	MID908617435		
Facility Address	Merrell Dow Pharmaceuticals Inc. 2111 E. Galbraith Road Cincinnati, OH 45215	2 M	6 M
EPA ID#	OHD004254702		
Facility Address	Findlay Plant P.O. Box 708 Findlay, OH 45840	2 M	6 M
EPA ID#	OHD005053624		
Facility Address	Hanging Rock Old 52 Highway Ironton, OH 45638	2 M	6 M
EPA ID#	OHD039128913		
Facility Address	Granville R&D P.O. Box 515 Granville, OH 43023	2 M	6 M
EPA ID#	OHD081287294		

EXHIBIT FEDERAL

(Continued)

		Sudden Insurance	Nonsudden Insurance
Facility Address	Dow Consumer Products, Inc. 5859 W. 96 Street Indianapolis, IN 46268	2 M	6 M
EPA ID#	IND000195545		
Facility Address	Magnolia Plant P.O. Box 520 Magnolia, AR 71753	2 M	6 M
EPA ID#	ARD041580762		
Facility Address	Russellville Plant P.O. Box 1048 Russellville, AR 72801	2 M	6 M
EPA ID#	ARD051965416		
Facility Address	LaPorte Facility P.O. Box 687 LaPorte, TX 77571	2 M	6 M
EPA ID#	TXD000017756		
Facility Address	Texas Operations B-1226 Freeport, TX 77541	2 M	6 M
EPA ID#	TXD008092793		
Facility Address	Riverside Plant P.O. Box 387 Pevely, MO 63070	2 M	6 M
EPA ID#	MOD001829852		
Facility Address	Alaska Ave. Facility 530 Alaska Ave. Torrance, CA 90503	2 M	6 M
EPA ID#	CAD990862864		

DO 143929
CONFIDENTIAL

EXHIBIT FEDERAL

(Continued)

		Sudden Insurance	Nonsudden Insurance
Facility Address	Torrance Plant 305 Crenshaw Blvd. Torrance, CA 90503	2 M	6 M
EPA ID#	CAD009547050		
Facility Address	Pittsburg Plant P.O. Box 1398 Pittsburg, CA 94565	2 M	6 M
EPA ID#	CAD076528678		

EXHIBIT 1

List of Facilities in Louisiana for which financial Assurance is being demonstrated through the Louisiana financial test for Louisiana Hazardous Waste Regulations.

		Closure Cost	Post Closure Cost
Facility	The Dow Chemical Company		
Address	Louisiana Division	3,696* M	379 M
	P.O. Box 150		
EPA ID#	Plaquemine, LA 70765		
	LAD008187080		
Facility			
Address			
EPA ID#			
Facility			
Address			
EPA ID#			
Subtotal Closure and Post Closure Costs		\$ 3,696 M	\$ 379 M
Total Closure and Post Closure Cost			\$ 4,075 M

EXHIBIT 2

List of Facilities for which financial assurance is being demonstrated through the corporate guarantee.

	Closure Cost	Post Closure Cost
Facility Address		
EPA ID#		
Facility Address	<u>N O N E</u>	
EPA ID#		
Facility Address		
EPA ID#		
Facility Address		
EPA ID#		
Subtotal	\$	\$
Total Closure and Post Closure Costs		\$

Note: Photo copy this page if there are more facilities than can be listed here.

EXHIBIT 3

List of Facilities outside of Louisiana for which closure post closure financial assurance is being demonstrated a financial test substantially equivalent to the Louisiana financial test.

		Closure Cost	Post Closure Cost
Facility	Allyn's Point Plant	26,091*	
Address	Route 12 Gales Ferry, CT 06335		
EPA ID#	CTD001159730		
Facility	Dalton Plant	7,508	
Address	1468 Prosser Drive, S.E. Dalton, GA 30720		
EPA ID#	GAD045929643		
Facility	Joliet Plant	66,606	
Address	P.O. Box 368 Joliet, IL 60434		
EPA ID#	ILD093154599		
Facility	Ludington Plant	4,500*	
Address	S. Madison and Seventh Ludington, MI 49431		
EPA ID#	MID006016919		
Facility	North Haven Lab	12,231	
Address	410 Sackett Point North Haven, CT 06473		
EPA ID#	CTD000635896		
Facility	LaPorte Facility	3,839,019	15,867,354
Address	P.O. Box 687 LaPorte, TX 77571		
EPA ID#	TXD000017756		

DO 143933
CONFIDENTIAL

Subtotals Closure and Post Closure Costs	\$	\$
Total Closure and Post Closure Costs		\$

EXHIBIT 3

List of Facilities outside of Louisiana for which closure post closure financial assurance is being demonstrated a financial test substantially equivalent to the Louisiana financial test.

		Closure Cost	Post Closure Cost
Facility	Midland Plant		
Address	628 Bldg. Midland, MI 48640	38,724,538*	15,830,772*
EPA ID#	MID000724724		
Facility	Salzburg Landfill		
Address	Salzburg & Waldo Roads Midland, MI 48640	1,018,265	931,830*
EPA ID#	MID980617435		
Facility	Merrell Dow Pharmaceuticals, Inc.		
Address	2110 E. Galbraith Road Cincinnati, OH 45212	64,442	
EPA ID#	OHD004254702		
Facility	Findlay Plant		
Address	P.O. Box 708 Findlay, OH 45840	39,782*	
EPA ID#	OHD005053624		
Facility	Hanging Rock		
Address	Old 52 Highway Ironton, OH 45638	22,614	
EPA ID#	OHD039128913		
Facility	Granville, R&D		
Address	P.O. Box 515 Granville, OH 43023	5,279*	
EPA ID#	OHD081287294		

DO 143934
CONFIDENTIAL

Subtotals Closure and Post Closure Costs \$ \$

Total Closure and Post Closure Costs \$

EXHIBIT 3

List of Facilities outside of Louisiana for which closure post closure financial assurance is being demonstrated a financial test substantially equivalent to the Louisiana financial test.

		Closure Cost	Post Closure Cost
Facility	Dow Consumer Products, Inc.		
Address	5859 W. 96 Street	68,264	
	Indianapolis, IN 46268		
EPA ID#	IND000195545		
Facility	Magnolia Plant		
Address	P.O. Box 520	67,278	
	Magnolia, AR 71753		
EPA ID#	ARD041580762		
Facility	Russellville Plant		
Address	P.O. Box 1048	44,900*	
	Russellville, AR 72801		
EPA ID#	ARD051965416		
Facility	Texas Operations		
Address	B-1226	5,836,905*	352,872*
	Freeport, TX 77541		
EPA ID#	TXD008092793		
Facility	Riverside Plant		
Address	P.O. Box 387	65,151	
	Pevely, MO 60370		
EPA ID#	MOD001829852		

Facility
Address

EPA ID#

DO 143935
CONFIDENTIAL

Subtotals Closure and Post Closure Costs

\$

\$

Total Closure and Post Closure Costs

\$

EXHIBIT 3

List of Facilities outside of Louisiana for which closure post closure financial assurance is being demonstrated a financial test substantially equivalent to the Louisiana financial test.

		Closure Cost	Post Closure Cost
Facility	Torrance Plant		
Address	305 Crenshaw Blvd. Torrance, CA 90503	45,627*	
EPA ID#	CAD009547050		
Facility	Pittsburg Plant		
Address	P.O. Box 1398 Pittsburg, CA 94565	6,924,000	1,548,000
EPA ID#	CAD076528678		
Facility	Alaska Avenue Facility		
Address	530 Alaska Ave. Torrance, CA 90503	12,501*	
EPA ID#	CAD990862864		
Facility			
Address			
EPA ID#			
Facility			
Address			
EPA ID#			
Facility			
Address			
EPA ID#			
Subtotals Closure and Post Closure Costs		\$ 56,895,501	\$ 34,530,828
Total Closure and Post Closure Costs			\$ 91,426,328

DO 143936
CONFIDENTIAL

EXHIBIT 4

List of Facilities for which no financial assurance is being demonstrated.

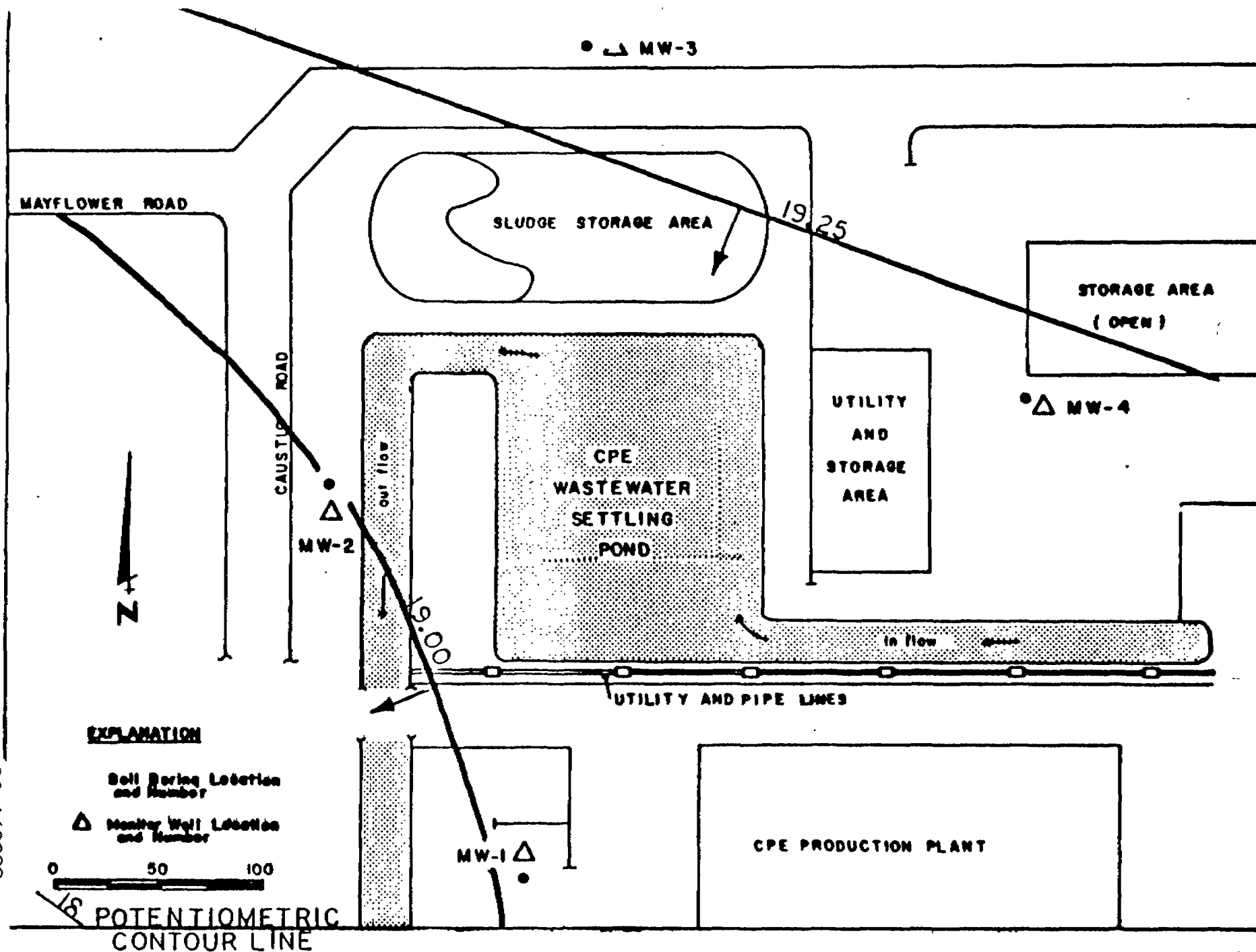
	Closure Cost	Post Closure Cost
Facility Address		
EPA ID#		
	<u>N O N E</u>	
Facility Address		
EPA ID#		
Subtotals Closure and Post Closure Costs	\$	\$.
Total of Closure and Post Closure Costs		\$

DO 143937
CONFIDENTIAL

POTENTIOMETRIC MAPS FOR THE
CHLORINATED POLYETHYLENE SURFACE IMPOUNDMENT

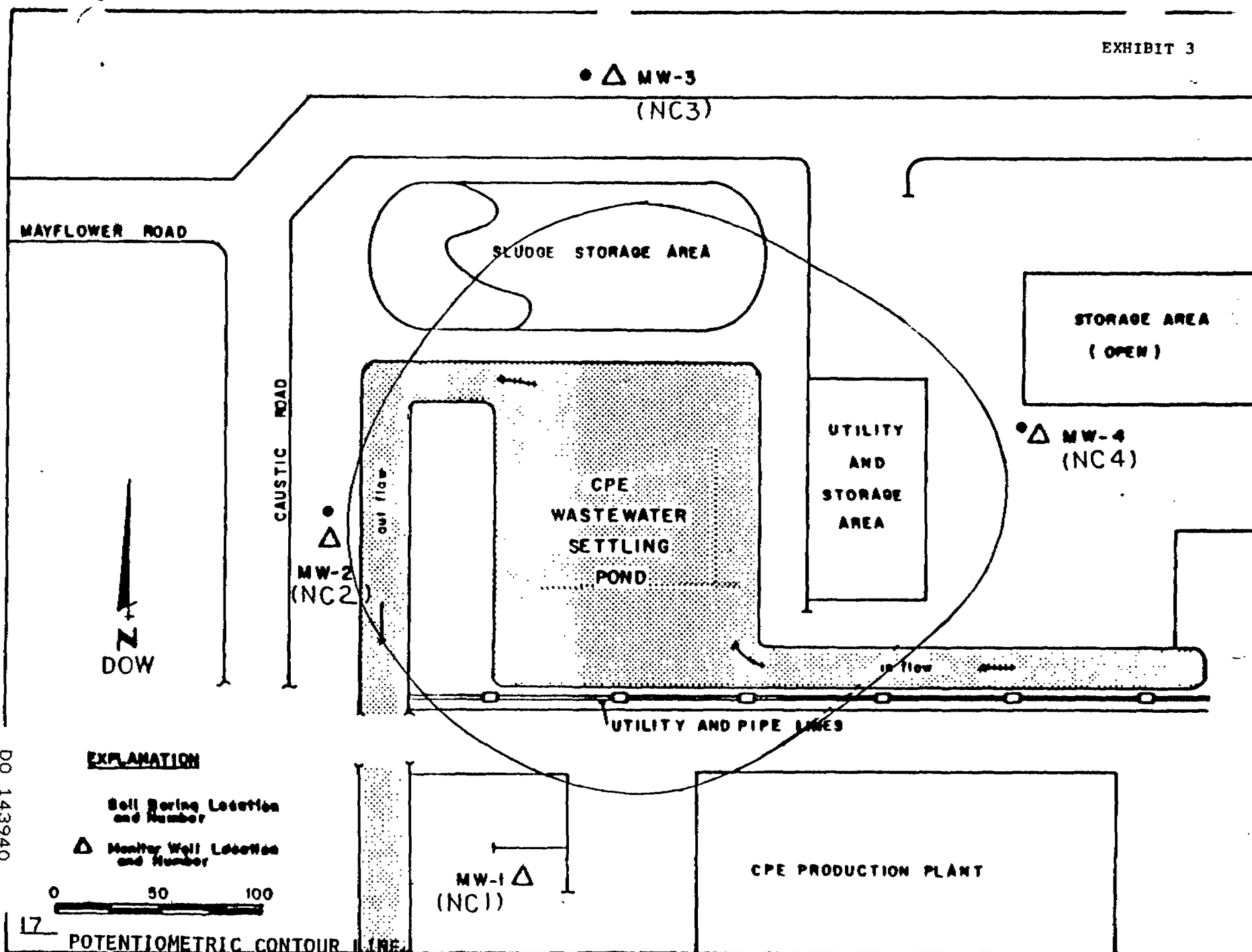
ATTACHMENT 3

DO 143938
CONFIDENTIAL



POTENTIOMETRIC CONTOUR MAP OF THE SILT LAYER BETWEEN 40-50 FEET (BLS) FOR THE PERIOD 6/84.

FIG. 22 D



1985 RCRA COMPLIANCE INSPECTION
CONDUCTED BY PRC ENGINEERING

ATTACHMENT 4

DO 143941
CONFIDENTIAL



DOW CHEMICAL U.S.A.

October 1, 1985

LOUISIANA DIVISION
P. O. BOX 150
PLAQUEMINE, LOUISIANA 70765-0150
804 389-8000

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mr. Glenn A. Miller
Office of Solid and Hazardous Waste
Department of Environmental Quality
P. O. Box 44307
Baton Rouge, Louisiana 70804

RESPONSE TO JUNE 25, 1985 RCRA GROUNDWATER INSPECTION REPORT
RECEIVED SEPTEMBER 12, 1985
DOW CHEMICAL U.S.A., LOUISIANA DIVISION

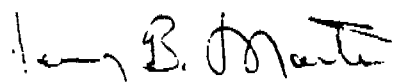
Dear Mr. Miller:

On June 25, 1985, PRC Engineering (authorized by the U.S. Environmental Protection Agency, Region VI) and the Louisiana Department of Environmental Quality conducted a RCRA groundwater monitoring compliance inspection at Dow Chemical U.S.A., Plaquemine, Louisiana.

On September 12, 1985, Dow received a copy of the report which PRC Engineers generated from that inspection. Attached please find Dow's comments on that report.

Should you have any questions regarding these comments, please do not hesitate to contact Melissa Guise (504)389-1899.

Sincerely,


Jerry B. Martin
Environmental Services Manager

Attachment

sb

DO 143942
CONFIDENTIAL

The following pages contain Dow's comments to the report which PRC Engineers generated from the RCRA groundwater monitoring compliance inspection of the Dow Chemical Plaquemine plant. General comments were made with regard to the text of the report, as well as specific comments in response to the sections of the report on conclusion/recommendations and apparent deficiencies/apparent violations.

GENERAL COMMENTS ON THE TEXT OF THE PRC REPORT

General Comment #1

On Page 8 of the PRC report, the statement is made that the Northwest Landfill is diked and equipped with a sump to collect surface runoff which is routed to Bayou Bourbeaux. When the landfill was initially opened surface, runoff was in fact collected and routed to Bayou Bourbeaux. However, for the past approximately two years, the surface runoff collected at the Northwest Landfill has been routed to the Division cooling water canal system and discharged through a proposed NPDES Internal Outfall #3001.

General Comment #2

On Page 12 under the section of hydrogeology, the statement is made that two zones (shallow and deep pervious zones) are known to be hydraulically interconnected based on results of hydrogeologic study of a proposed landfill site (Guise, Dow, February, 1985).

Potentiometric level collected in both the shallow and the deep pervious zones indicate similar groundwater flow directions. This would indicate a possible hydraulic connection between these two zones in the area where the measurements were taken.

General Comment #3

Under the section entitled S.2 Sampling Methods and Equipment, Page 27, it is noted that three newly installed wells did not have elevations established at the time of the inspection. The surveying of those elevations and location coordinates have been completed and that information is included in Table 1.

General Comment #4

Several errors were noted on Table 3 monitor well details. The screen setting below the land surface (ft) is incorrect for the following wells: UN1, UN2, and DN4. UN1 should be 44.0 - 47.0 feet bls, UN2 should be 40.0 to 45.0 feet bls, and DN4 should be 40.0 to 45.0 feet bls.

Groundwater Inspection
Report Comments
Page 2

Table 1

<u>Well #</u>	<u>Elevation to Datum Feet Mean Sea Level</u>	<u>Dow Location Coordinate</u>
DA5	22.61	84 + 48.20N 182 + 81.44E
DA6	23.22	83 + 52.40N 180 + 35.26E
NB4	23.09	87 + 52.04N 192 + 08.58E
DN6	19.33	106 + 85.01N 117 + 01.60E
NB3 (reshot)	23.40	92 + 51.72N 187 + 99.03E

Please note on NB3, the elevation to reference datum was initially reported to the Louisiana Department of Environmental Quality as 23.69 ft (mean sea level).

This measurement was made prior to installation of the well wizzard pumps. When the pump was installed, the reference datum was altered slightly. This, however, does not change the general direction of groundwater flow in this area.

COMMENTS ON CONCLUSION AND RECOMMENDATIONS OF THE PRC REPORT

PRC Recommendation #1

As was discussed with facility personnel, a standardized procedure for water level measurement should be implemented at the Dow facility. The presence of the dedicated pumping system in each well may influence water level measurements. These water level measurements are crucial due to the low hydraulic gradients encountered in this area. If water levels are not measured accurately, actual flow directions cannot be established.

Dow's Comment

The dedicated pumping system that Dow is currently using in all of the monitoring wells consist of a bladder pump suspended in the well by two Teflon* tubes. The Teflon* tubes are attached to a well cap. In order to take a depth-to-water measurement, the top well cap is removed. Dow has marked the tubing connectig the pump to the well cap so the same length of tubing is pulled from the well each time a measurement is taken.

PRC Recommendation #2

The wells near the Chlorine Plant may be influenced by the brine water that is in the series of impoundments. No monitoring data was seen for well NB3 (the upgradient well), but if this well is being influenced by the impoundment contents, further investigation and installation of wells may be necessary. This point was raised by an LDEQ employee who is familiar with the facility and was not brought out in any of the documents obtained the in any of the documents obtained by the inspection team.

Dow's Comments

Salt is present in the shallow soils around the Chlorine Plant Surface Impoundment. Dow is currently reviewing this situation, and will continue communication with the Louisiana Department of Environmental Quality.

PRC Recommendation #3

The numerous ditches carrying wastewater to the NPDES discharge point which are known to influence groundwater flow in the shallow zone (Guise, February 1985) may contribute contaminants to the shallow zone. Depending on the exact nature of the influence exerted by the canal system (details were not included in Dow materials obtained by the inspection team), it is possible for the canal to be a recharge source for the shallow pervious zone. Further investigation of this question may be warranted to determine if material transported in the canal system is entering the shallow pervious zone.

Dow's Comment

The potentiometric data collected from the monitoring wells at the Chlorine and Chlor-Alkali II Surface Impoundments indicate a hydraulic connection between this zone and the shallow cooling water canal system present in the Division. The cooling water canal system is monitored and all discharges go through a permitted NPDES discharge point. Dow has monitoring wells downgradient of all of the hazardous waste facilities which require groundwater monitoring. This shallow zone is not a source of drinking water and Dow feels further investigation is not warranted.

PRC Recommendation #4

The presence of one deep and three shallow monitoring wells downgradient of the Northwest Landfill may be insufficient to accurately detect any contamination released from that facility. Although Dow maintains that only cell No. 3 contains hazardous waste, some investigation may be necessary to substantiate this claim.

Dow's Comment

Dow is currently proposing to install two additional downgradient monitoring wells at the Northwest Landfill. Exhibit 1 of this document shows the location of the existing wells at the Northwest Landfill and the location of the two proposed wells. Pilot soil borings will be drilled prior to the installation of these wells to define the stratigraphy of this area. All existing monitoring wells at the Northwest Landfill are screened between 40 to 50 feet below the land surface with the exception of one well (NN5) which is screened at approximately 110 feet below the land surface.

Groundwater Inspection
Report Comments
Page 5

The silt zone between 40 to 50 feet below the land surface will probably be the zone in which the two proposed wells will be screened. However, as mentioned above, pilot soil borings will be drilled and the stratigraphy described prior to the installation of these wells to ensure that the first continuous pervious zone is screened.

COMMENTS ON APPARENT DEFICIENCIES IN SAMPLING PROCEDURES AND THE
GROUNDWATER MONITORING SYSTEM AT DOW CHEMICAL

Apparent Deficiency #1

Slumping of annular space material was noted around well casings which may indicate a defective annular space sealing procedure.

Dow's Comment

It was noted during the groundwater compliance inspection that slumping of the annular space had occurred in three wells DN6, NB1, and NB2.

During the normal process of backfilling any soil boring or the annular space of a well, some natural consolidation occurs because the hydrostatic head of the column of cement/bentonite and its density causes the cement/bentonite to flow into the pervious zones, resulting in a slumping of the cement in the borehole or annular space of the well. When this occurs, Dow will top these borings/wells off with cement/bentonite to ensure a good seal to the land surface.

Prior to adding additional backfill to the wells sited above, (NB1, NB2, and DN6) Dow will test the integrity of one of these wells by conducting a pressure test. The results of the pressure test will be reported to the Louisiana Department of Environmental Quality.

Apparent Deficiency #2

Monitoring wells constructed with glued joints may contribute to elevated trace organic levels in the groundwater and/or falsely add trace organics to groundwater samples.

Dow's Comment

As noted in the PRC report, Dow is aware of the fact PVC pipe with cemented joints can impact the quality of groundwater samples collected from these wells. Dow conducted a study on this problem in the early part of 1983. Dow concluded from the study that trace organics were originating from the PVC well casings and Dow has observed trace organic levels decrease over time.

Dow no longer uses PVC as a material of construction for monitoring wells. A recently installed monitoring wells have been constructed of polyethylene casing and stainless steel screens.

APPARENT VIOLATIONS IN SAMPLING PROCEDURES AND THE GROUNDWATER
MONITORING SYSTEM AT DOW CHEMICAL

Apparent Violation #1

Calculations made to determine the mean and variance for upgradient wells (also downgradient wells; however, these are not required) were done incorrectly. Therefore, the calculations for t^* and t_c are incorrect. [Section 365.93(b)]

Dow's Comment

For reasons cited in other correspondence with the Louisiana Department of Environmental Quality, Dow feels that statistical analysis of groundwater data using the prescribed Behrens-Fisher Student's t-test results in a high percentage of false positives.

Below is a recap of Dow's current procedure for statistical analysis and explanation why this procedure is used:

- A. The four replicate samples for each parameter, for each well, are averaged together prior to proceeding with the calculations in order to minimize the effect of analytical variability. For example, past data history shows that there is a greater variation in quarterly data (i.e. cylindrical seasonal data) than in the four replicate samples taken at the same time and analyzed on the same analyzer. If an $N = 16$ is utilized (one year's data including individual replicates) then the small analytical variation when input into the statistical equations, will result in lower standard deviation and variance, W_b , and W_m values which increases the t^* value and lowers the t_c value. According to the regulations, if the t^* is less than t_c , then it is concluded that most likely there has not been a change in this parameter. However, by using $N = 16$, t^* is increased, t_c is decreased resulting in a larger number of false positives.

- B. Four quarters of the replicates samples were averaged together for the compliance point well. The reason Dow uses four quarters of data for the compliance point well is to allow for seasonal variations. The major concern is cyclic seasonal changes in groundwater quality which may be mistaken for contamination particularly for the indicator parameters (pH, specific conductance, TOC, TOX). For example, pH in shallow aquifers can change with dissolved carbon dioxide content in groundwater. Specific conductance can be influenced by fluctuating wet and dry seasons.

In addition to seasonal variation, groundwater quality is also controlled by numerous other factors. The mineralogy and microbial nature of the medium through which the water flow mode, mixing of water of different quality, and residence time of groundwater can also influence groundwater quality and result in quality fluctuations.

For the reasons cited above, Dow feels that uncontrolled variation will be minimized thus minimizing the chances for false positives.

Apparent Violation #2

Dow collected background data beginning in the fourth quarter of 1982 and continuing through the fourth quarter of 1984. In some cases (e.g., groundwater quality parameters), data is incomplete. Background data is required to be established for all monitoring wells quarterly for one year. [Section 265.92(c)]

Dow's Comment

According to Dow's records, all background data for all wells, except the recently installed wells at the Chlorine and Chlor-Alkali II surface impoundment, is complete. Not all background data for all parameters was collected during the same time period. The reason for this is as the hazardous waste regulations have changed over the years so have the parameters to be analyzed. Therefore, not all background data for all parameters were collected during the same time period.

Groundwater Inspection
Report Comments
Page 9

Apparent Violation #3

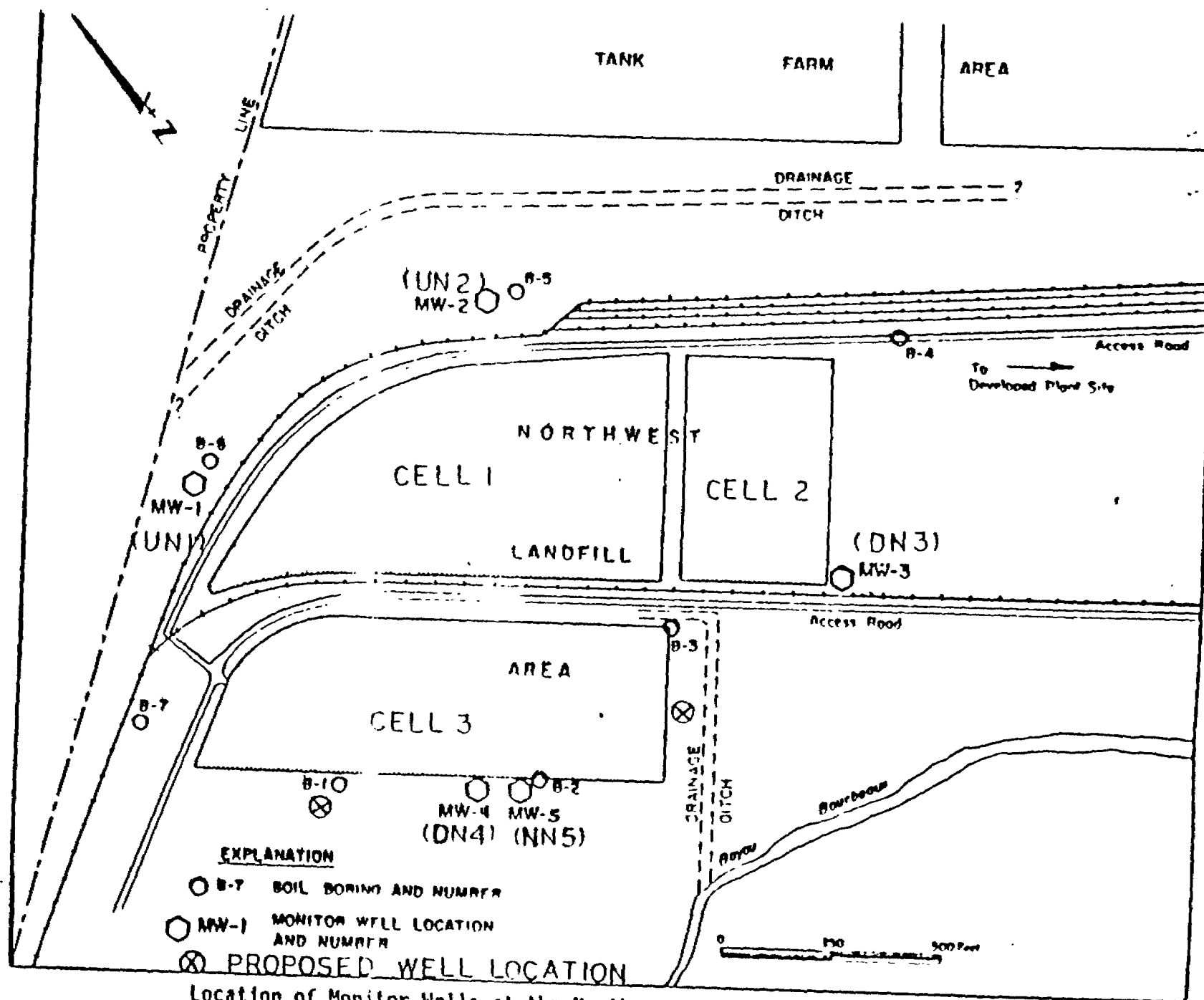
Dow does not have the required number of wells correctly located around the CPE surface impoundments as prescribed in the regulations. At least three downgradient wells are required and due to changing groundwater flow directions during the summer, only two wells are truly downgradient of the CPE impoundment throughout the year. [265.91(a)(2)]

Dow's Comment

The monitoring well network at the CPE surface impoundment consists of four wells NC1, NC2, NC3, and NC4. The groundwater flow direction as determined by the current groundwater monitoring network at the CPE surface impoundment appears to shift slightly throughout the year. A total reversal of flow has not been observed, but rather a shift from a predominantly westerly direction to a periodic flow in a southwesterly direction. The groundwater flow direction is in a westerly direction (Dow coordinates) approximately ten months out of the year. During this time, wells NC1 and NC2 function as downgradient wells. Periodically, the groundwater flow direction has been observed to shift slightly to the southwest. During this time, wells NC1 and NC2 function as downgradient wells. NC3 is located such that in the event the groundwater flow direction shifts slightly to the north then NC3 will function as a downgradient well.

MG:sb
10/85
GW-1985

DO 143953
CONFIDENTIAL



Location of Monitor Wells at the Northwest Landfill Area.



DOW CHEMICAL U.S.A.

December 6, 1985

LOUISIANA DIVISION
P. O. BOX 160
PLAQUEMINE LOUISIANA 70765-0160
504 388-8000

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mr. Glenn A. Miller
Office of Solid and Hazardous Waste
Department of Environmental Quality
P. O. Box 44307
Baton Rouge, Louisiana 70804

FOLLOW-UP ON DEFICIENCIES SITED IN PRC REPORT
DOW CHEMICAL U.S.A., LOUISIANA DIVISION

Dear Mr. Miller:

In November, 1985, Dow Chemical installed two additional groundwater monitoring wells at the Northwest Landfill.

Prior to well installation, two pilot soil borings were drilled to define the stratigraphy. Logs for these soil borings are included in Attachment 1. It was determined from the pilot soil borings that the first continuous pervious zone suited for groundwater monitoring occurred between 40 to 50 feet below the land surface. (This is the zone currently being monitored at the Northwest Landfill.) Well locations and well completion diagrams are included in Attachment 2.

It was noted during the groundwater compliance inspection that slumping of the backfill had occurred in the annular space of three of Dow's groundwater monitoring wells. To test the integrity of these wells, Dow has proposed to conduct a pressure test on one of the wells. In order to conduct this test, a well packer must be used. Dow is currently waiting on delivery of this packer.

Should you have any questions regarding information discussed above, please do not hesitate to contact Melissa Guise (504)389-1899.

Sincerely,

Wayne Turner
Environmental Services Manager

sb

DO 143954
CONFIDENTIAL

ATTACHMENT 1

DO 143955
CONFIDENTIAL

PROJECT Northwest Landfill
 LOCATION Louisiana Division of
 Dow Chemical Company
 DRILLING COMPANY Barrington Drilling
 Company

COORDINATES
 ELEVATION
 (NATURAL GRADE)

BORING NO. 11
 FILE
 DATE 11/11/88
 TECHNICIAN MC
 APPROVED
 PAGE 1 of 2

DEPTH FEET	SAMPLE	DRY AUGERED		WASH BORE		
		0' to 6'		6' to 52'		
Water initially entered borehole at 6 feet. Water level at 29 inches after a 15 minute observation period.						
		S.P. 1 (PSI)	COMPRESSION STRENGTH (PSI)	MOISTURE CONTENT (%)	S.P. 1 (PSI)	DESCRIPTION OF STRATUM
0						Brown, Sandy SILT.
						Brown and tan Silty CLAYS with sandy silt pockets becoming brown clay.
5						Medium light brown to gray CLAYS with ferrous nodules with silty clay layer at 7'.
10						Brown and gray Silty CLAYS with silt pockets becoming gray and brown CLAYS
						Medium gray CLAYS with organic material and ferrous nodules.
						-- with root hair.
15						-- with silty clay pocket
						-- stiff fractures.
20						-- with wood pieces.
						-- with calcareous nodules.
25						-- slickensided.
30						-- trace chells no fractures.
35						-- with silty clay pocket.
						-- with shell layer and 4" peat layer.
40						

DO 143956
 CONFIDENTIAL

PROJECT Northwest Landfill

COORDINATES

DO 143957

LOCATION Louisiana Division of
Dow Chemical CompanyELEVATION
(NATURAL GRADE)

FILE

DATE 11/12/85

TECHNICIAN MG

APPROVED

PAGE 2 of 2

DEPTH (FEET)	SAMPLE	DRY AUGERED						WASH BORED	
		S.P.T. (BLows) or P.C.T. (TSP)	COMPACTION STRENGTH (TSP)	MOISTURE CONTENT (%)	DRY DENSITY (PCF)	LL (%)	PI (%)	DESCRIPTION OF STRATUM	
40								Gray Silty CLAYS with silt seams, wood pieces and root hair.	
								-- with calcerous nodules and clay lense.	
45								-- with Sandy silt lenses and clay pockets.	
								-- becoming gray CLAYS.	
50								Medium gray CLAYS with wood pieces and organic material.	
								-- with silty clay pockets and calcerous nodules.	
55								Bottom of boring 52 feet.	
								Grouted Full Depth.	
60									
65									
70									
75									
80									

DO 143957
CONFIDENTIAL

PROJECT Northwest Landfill

BORING NAME DNE

FILE

DATE 11/3/85

TECHNICIAN MC

APPROVED *MC*

PAGE 1 of 2

LOCATION Louisiana Division of
Dow Chemical Company
DRILLING COMPANY Barrington Drilling
Company

ELEVATION
(NATURAL GRADE)

DEPTH (FEET)		DRY AUGERED		WASH BORED			
		0' to 8'		8' to 52'			
Water initially entered borehole at 8 feet. Water level at 76 1/2 inches after a 10 minute observation period.							
		SPT (BFT) OR PT PER (TSP)	COMPACTION STRENGTH (TSP)	MORTAR CONTENT (%)	WATER REDUCTION (%)	LL (%)	PI (%)
0							
							Brown, Sandy SILTS becoming Clayey SILTS with ferrous nodules and root hairs.
5							
							Brown and gray CLAYS with ferrous nodules with silty clay pocket at the top.
							-- with root hairs.
10							
							-- with organic material.
							-- with silty clay pocket.
15							
							-- with silty clay lense.
20							
							-- becoming stiff, greenish gray with fractures, calcareous nodules, and roots.
25							
							-- with wood and organic material.
							-- gray with no fractures.
30							
							-- grayish brown
35							
							-- with shell layer at 35 feet becoming brown carbonaceous clay.
							-- stiff gray with calcareous nodules and fractures.
40							

DO 143958
CONFIDENTIAL

LOG OF BORING

PROJECT Northwest Landfill

COORDINATES

BORING NWLF DNE

LOCATION Louisiana Division Of
Dow Chemical Company

ELEVATION
(NATURAL GRADE)

FILE

DATE 11/3/85

TECHNICIAN MG

APPROVED *MC*

PAGE 2 of 2

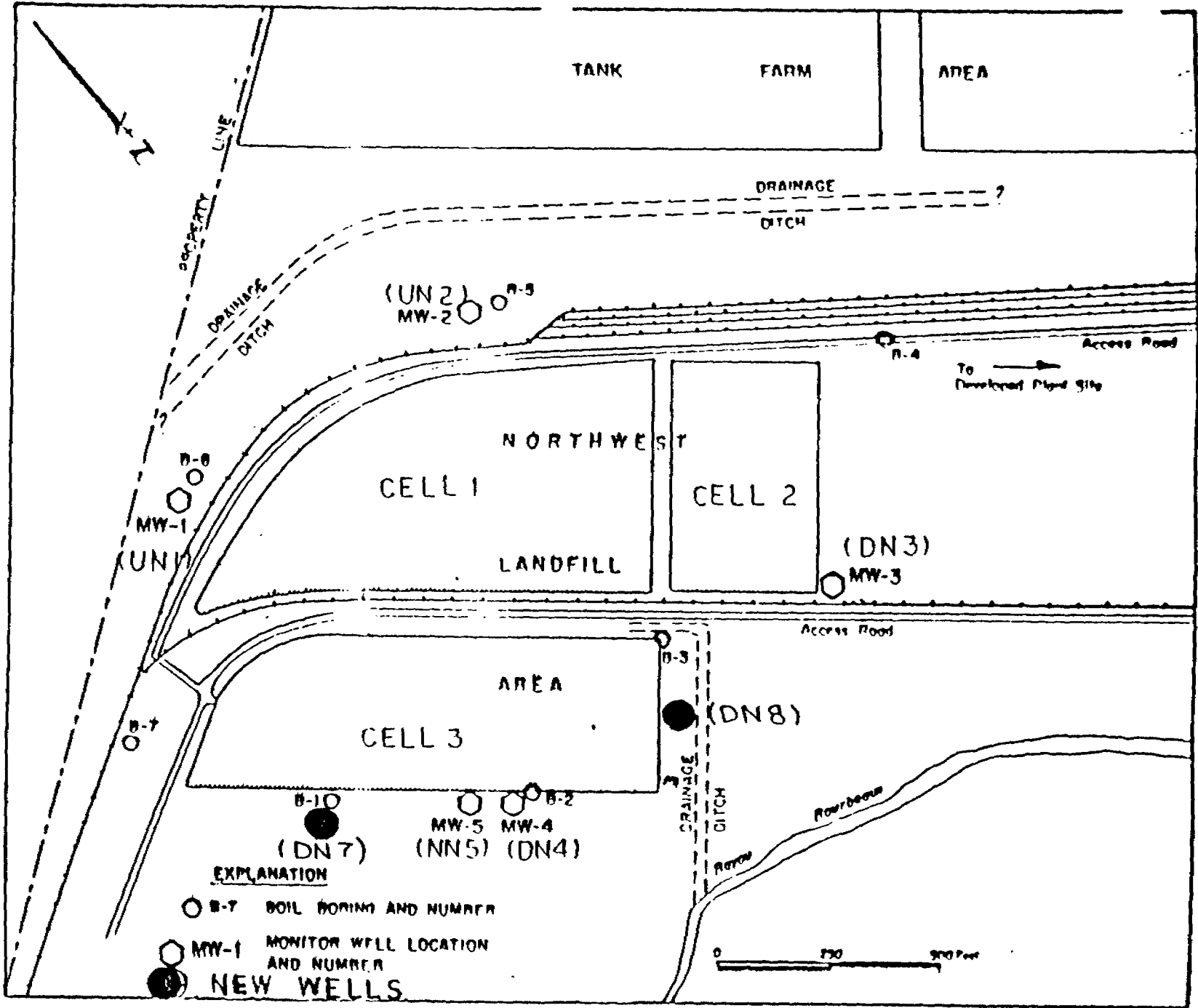
DEPTH FEET	SAMPLE	DPI AUGERED						WASH BORED
		SPT (BPT) BL PER (TSF)	COMPRESSION STRENGTH (TSF)	MOISTURE CONTENT (%)	DRI DENSITY (PCF)	LL (%)	PI (%)	
40								Gray Silty CLAYS with ferrous nodules, wood pieces, clay pockets and calcerous nodules.
								-- silt pockets
45								-- sandy silt lenses and wood becoming gray clays.
								Gray CLAYS with calcerous nodules root hairs, organic specks and wood.
50								
								Bottom of boring 52 feet. Grouted Full Depth.
55								
60								
65								
70								
75								
80								

DO 143959
CONFIDENTIAL

ATTACHMENT 2

DO 143960
CONFIDENTIAL

Geography & Miller, Inc.



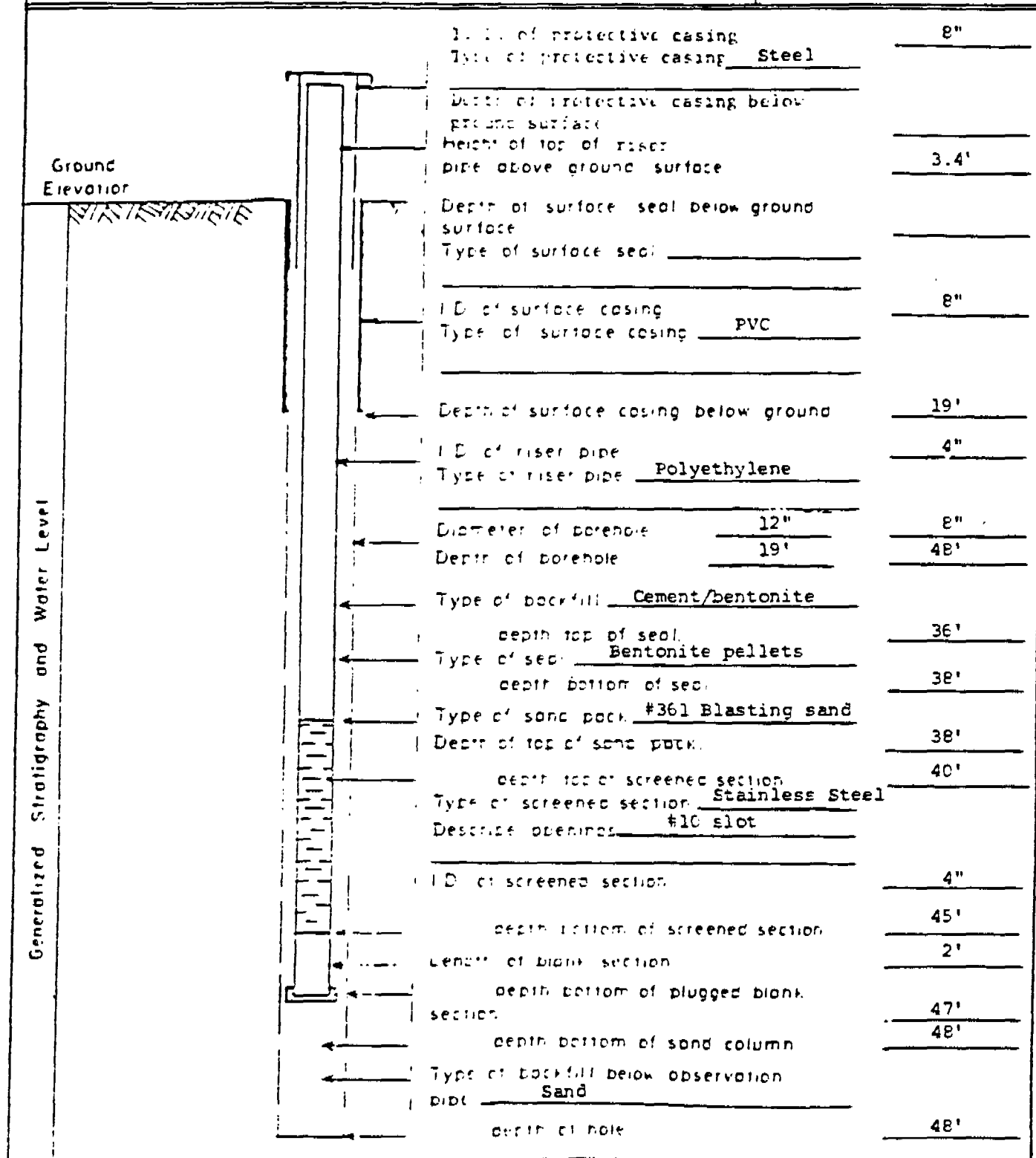
Location of Monitor Wells at the Northwest Landfill Area.

DO 143961
CONFIDENTIAL

GROUND WATER OBSERVATION WELL REPORT

PROJECT Northwest Landfill Monitor Well
 LOCATION Dow Chemical U.S.A., Flaguering, Louisiana
 Date Completed 11/19/85 Original Depth 47'
 Inspected By MAG Date _____
 Checked By _____ Date _____

Page 1 of 1
 Well No D27
 Aquifer Deep
 Pervious Zone _____
 Depth Interval 40' - 45'



GROUND WATER MONITORING WELL REPORT

PROJECT <u>Northwest Landfill Monitor Well</u>		Page <u>1</u> of <u>1</u>
LOCATION <u>Dow Chemical U.S.A., Flaguana, Louisiana</u>		Well No <u>DW</u>
Date Completed <u>11/19/85</u>	Original Depth <u>48'</u>	Aquifer <u>Deep</u>
Inspected By <u>MAG</u>	Date <u>11/19/85</u>	Pervious Zone
Checked By	Date	Depth Interval <u>41' - 46'</u>

Generalized Stratigraphy and Water Level 	1. ID of protective casing	8"
	Type of protective casing <u>Steel</u>	
	Depth of protective casing below ground surface	
	Height of top of riser pipe above ground surface	3.2'
	Depth of surface seal below ground surface	
	Type of surface seal	
	ID of surface casing	8"
	Type of surface casing <u>PVC</u>	
	Depth of surface casing below ground	20'
	ID of riser pipe	4"
	Type of riser pipe <u>Polyethylene</u>	
	Diameter of borehole <u>12"</u>	8"
	Depth of borehole <u>20'</u>	49'
	Type of backfill <u>Cement/bentonite</u>	
	Depth top of seal	37'
Type of seal <u>Bentonite pellets</u>		
Depth bottom of seal	39'	
Type of sand pack <u>#361 Blasting sand</u>		
Depth of top of sand pack	39'	
Depth top of screened section	41'	
Type of screened section <u>Stainless steel</u>		
Describe openings <u>#10 Slot</u>		
ID of screened section	4"	
Depth bottom of screened section	46'	
Length of blank section	2'	
Depth bottom of plugged blank section	48'	
Depth bottom of sand column	49'	
Type of backfill below observation pipe <u>#361 Blasting sand</u>		
Depth of hole	49'	



PATRICIA NORTON
SECRETARY

OFFICE OF SOLID AND HAZARDOUS WASTE

JOHN KOLPY
ASSISTANT SECRETARY

October 15, 1985

William H. Taylor, Jr., Chief
Enforcement Section (6AW-HE), Region VI
U.S. Environmental Protection Agency
1201 Elm Street
Dallas, Texas 75270

Attention: Linda Thompson, Enforcement Section

Dear Mr. Taylor:

Re: E.P.A. contract 66-01-7037, PRC Engineers
Dow Chemical, U.S.A. (LAD002187080)

Dow Chemical was furnished a copy of the PRC report on September 12, 1985 for their review and comment. We have enclosed Dow's response and intentions as concerns PRC's findings, and met with their representatives in late September to discuss this matter. Louisiana finds that:

- * Testing of several "worst case" well annuliuses is in order, and should resolve the integrity question relating to visible subsidence of grout around the casing.
- * Dow's proposal to install additional wells around the northwest landfill should correct any detection hiatus that may exist around this facility.

Since Louisiana is planning in the not too distant future to allow operators to use site-specific indicators in lieu of statistical evaluations of the standard indicators, we would prefer not to pursue the validity of Dow's current statistical protocol at this time.

We will require Dow's monitoring wells to meet all integrity standards, wherever applicable, and will follow up on PRC's recommendations for additional monitoring wells to insure that an adequate detection program exists around the landfill area.

Please advise if you feel that other actions may be warranted.

Sincerely,

GEORGE H. CRAMER, II

Acting Administrator

Ground Water Protection Division

GHCR:ML:ym

DO 143964
CONFIDENTIAL



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION VI
1201 ELM STREET
DALLAS, TEXAS 75270

August 29, 1985

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Mr. Glenn Miller, Administrator
Hazardous Waste Division
Louisiana Department of Environmental
Quality
Office of Solid and Hazardous Waste
Post Office Box 94307
Baton Rouge, Louisiana 70804

DEPARTMENT OF
ENVIRONMENTAL QUALITY
HAZARDOUS WASTE MANAGEMENT

Dear Mr. Miller:

Enclosed are copies of the draft final reports of the RCRA groundwater monitoring compliance inspections for the Dow Chemical U.S.A. Plant, Plaquemine, Louisiana and the Ethyl Corporation Plant, Baton Rouge, Louisiana.

The reports are currently being reviewed by members of my staff, and it is requested that your staff review them and provide comments as soon as possible to Linda Thompson at (214) 767-2949.

Sincerely yours,

William H. Taylor, Jr., Chief
Enforcement Section (6AW-HE)

Enclosure

Copy 1

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OPERATING AND PROCESS INFORMATION

ON RCRA UNITS

ATTACHMENT 5

DO 143966
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- 4.9 j) 8) Prevent accidental ignition or reaction of ignitable, reactive, or incompatible wastes as required to demonstrate compliance with §9.9;

RESPONSE

Not applicable. This facility is a surface impoundment that is considered hazardous only due to corrosivity. This surface impoundment does not receive ignitable, reactive or incompatible waste and is not subject to the requirements of §4.9j)8) or §9.9. The flow into this surface impoundment consists of dedicated or similar streams that do not pose an ignitable, reactive or incompatibility hazard.

A Division-wide response pertaining to ignitable and reactive concerns was addressed in the General Volume I-A, §§9.9a) and 9.9b). Compliance with this Division-wide program is required by Dow guidelines.

- 4.9t) 7) Operations plan, including:

- a) Classification and estimated quantities of wastes to be handled;

RESPONSE

The liquid waste that is stored in this surface impoundment is hazardous only due to corrosivity (sodium hydroxide), which is identified with EPA I.D. Number D002.

This surface impoundment is utilized as a storage facility and it normally receives a monthly flow of 12,510 tons liquid waste.

- 4.9t)7) b) Methods and processes utilized:

Facility capacity for each disposal method;

Detailed description of each process or method;

Storage and disposal procedures:

Plans for receipt, checking, processing, segregation of incompatible wastes, and odor control; and

Life of each facility based on projected use;

4.9t)7)b)

Describe recordkeeping procedures, types of records to be kept, and use of the records by management to control the operation; and

Monitoring and recording of incoming wastes;

RESPONSE

Capacity - The maximum capacity of this surface impoundment is 1.9MM gallons, for the storage of liquid waste which is hazardous due to corrosivity (EPA I.D. D002).

Process Description - This impoundment is used infrequently, and mainly during plant upsets to prevent the plant discharge from containing any appreciable amounts of unneutralized caustic. The impoundment is kept at a minimum level, usually between 7 and 10%.

The liquid waste stored in this impoundment contains a typical composition of 1.2% sodium hydroxide.

During normal operation, this impoundment is kept in a stand-by mode by the computer which controls the plant's ecology system. During this normal operation, all of the plant wastewater is discharged directly into the plant's two pH monitoring and control stations. This station adds hydrochloric acid to neutralize the effluent to an acceptable range (typically 6 - 9 pH). This effluent is then discharged through the plant's NPDES-permitted Internal Outfall 003A and ultimately to the final Division Outfall 021.

Plans for Receipt, Checking, Processing - This surface impoundment receives process wastewater only from the CA II Plant through a system of pipes. This impoundment receives dedicated process streams which are essentially uniform in chemical composition. No incompatible wastes enter this impoundment and there are no offensive odors. The ultimate treated effluent from this system is monitored for pH on a continuous basis.

Life of Facility - This facility is projected to operate until the year 2030.

Recordkeeping Procedures - Types of records and recordkeeping procedures can be found by referencing §9.5b) in this volume. In addition, the whole operation is computer controlled. All the variables are either continuously

4.9t)7)b)

RESPONSE (continued)

displayed or can be displayed on command on a CRT computer screen. All alarms are logged automatically by the computer including time on, time acknowledged and time off. In addition, an operations log exists in the control center for logging all unusual plant conditions, or any other information. The ecology engineer reviews the control center log, the computer alarm log, the computer display, and the CRT display at least once a day. Since the operation is computer controlled, it is normally necessary only to check for malfunctions and deviations from specified conditions.

Incoming Waste - To monitor and control incoming waste, only one pipeline is connected to this surface impoundment. The flow entering or exiting the impoundment must flow through this pipe. A separate flow meter is utilized for each of these flows.

The flow meter readings are stored in the computer memory and totaled. The instantaneous or totaled flow for the day or the month can be retrieved at any moment.

The impoundment level is continuously monitored and the difference in level is also a measure of the amounts of wastes received and/or discharged.

Outfall 021 which has the pH limits of 6 - 9 pH based on continuous on-line measurement. The NPDES Permit number is LA0003301.

When a high pH is detected in the CA II Plant Outfall trench (003A), or when a known high alkaline discharge occurs, the plant's effluent flow is diverted to the hazardous waste surface impoundment by either an automatic computer control or by manual operator activation until the plant upset has been brought under control. During these upset conditions, the surface impoundment is used to store the excess alkalinity to prevent a pH non-compliance of the NPDES Permit.

4.9j)7)b)

RESPONSE (continued)

When the plant is back to a normal operating condition, the operator signals the computer to start the flow out of the impoundment into the plant's ecology system at a reduced flow rate of approximately 50 gallons per minute. If the pH in the outfall trench remains within specified limits, the flow is gradually increased. If the pH goes beyond the specified range, the flow is decreased or the operation stopped depending on the severity of the deviation. The computer finds the optimum flow rate that would maintain the specified pH range, and the operation proceeds until the impoundment level is less than 10%. At this point, the impoundment returns to the normal stand-by mode.

4.12 (2nd) Specific Part II information requirements for surface impoundments.

Except as otherwise provided in §§1.3d) and 9.1 and §§3.3b) and c), owners and operators of facilities that store, treat or dispose of hazardous waste in surface impoundments must provide the following additional information:

- a) A list of the hazardous wastes placed or to be placed in each surface impoundment;

RESPONSE

Only one hazardous waste is placed in the impoundment as described in §9.10, Waste Analysis Plan, in this volume. This waste is a wastewater stream which is hazardous only because of the characteristic of corrosivity (D002). The hazardous waste flows to the impoundment via pipeline. The source of the waste is always the same.

4.9j)8)

RESPONSE (continued)

A Division-wide response pertaining to ignitable and reactive concerns was addressed in the General Volume I-A, §§9.9a) and 9.9b). Compliance with this Division-wide program is required by Dow guidelines.

4.9t) 7) Operations plan, including:

- a) Classification and estimated quantities of wastes to be handled;

RESPONSE

The liquid waste that is stored in this surface impoundment is hazardous only due to corrosivity (sodium hydroxide), which is identified with EPA I.D. Number D002.

This surface impoundment is utilized as a storage facility and it normally receives a monthly flow of 30,650 tons liquid waste. Under normal operating conditions, approximately one-half of the flow from the surface impoundment is recycled back for product (sodium hydroxide) recovery.

4.9t)7) b) Methods and processes utilized:

Facility capacity for each disposal method;

Detailed description of each process or method;

Storage and disposal procedures:

Plans for receipt, checking, processing, segregation of incompatible wastes, and odor control; and

Life of each facility based on projected use;

4.9t)7)b)

Describe recordkeeping procedures, types of records to be kept, and use of the records by management to control the operation; and

Monitoring and recording of incoming wastes;

RESPONSE

This surface impoundment is utilized for the storage of a solution of sodium hydroxide in water. The capacity of this impoundment is 1.6 MM gallons.

Process Description - The Chlorine Plant surface impoundment functions as a holding pond for alkaline process streams. The caustic comes primarily from chlorine scrubber bottoms.

Approximately half of the impoundment alkaline water is normally recycled back through one of two sections of the process. If the caustic concentration is high enough, the pond water is recycled back through the chlorine scrubbers. Also, to further utilize the caustic, the pond water can be recycled back through the brine treating system.

The portion of impoundment contents which is not recycled becomes process wastewater. The wastewater is pumped from the pond at a controlled rate into a Chlorine Plant canal treatment system. The alkaline wastewater in this system is neutralized and then discharged through the Division's NPDES-permitted Outfall 021 which has the pH limits of 6 - 9, based on a continuous on-line measurement. The NPDES Permit number is LA0003301.

Plans for Receipt, Checking, Processing - This surface impoundment receives process wastewater only from the Chlorine Plant through a piping system. This impoundment receives dedicated process streams which are essentially uniform in chemical composition. No incompatible wastes enter this impoundment and there are no offensive odors. The ultimate treated effluent from this system is monitored for pH on a continuous basis.

Life of Facility - This facility is projected to operate until November, 1988.

4.9t)7)b)

RESPONSE (continued)

Recordkeeping Procedures - The analysis of the pond is logged daily. The data is used to determine when to recycle pond contents and when to discharge to the NPDES system. Daily events are logged on a sheet provided for records. Log sheets are reviewed by management on a routine basis. Additional detail on the types and record-keeping procedures can be found by referencing §9.5b).

Incoming Waste - The flows entering this impoundment is of consistent composition, based on process knowledge. The level of the impoundment is monitored on a daily basis.

4.12 (2nd) Specific Part II information requirements for surface impoundments.

Except as otherwise provided in §§1.3d) and 9.1 and §§3.3b) and c), owners and operators of facilities that store, treat or dispose of hazardous waste in surface impoundments must provide the following additional information:

- a) A list of the hazardous wastes placed or to be placed in each surface impoundment;

RESPONSE

The Chlorine Plant surface impoundment contains only hazardous wastes which are hazardous because of the characteristic of corrosivity. The wastes are all generated in the Chlorine Plant and the presence of sodium hydroxide in the waste streams causes the pH to be greater than 12.5 and thus a hazardous waste. These wastes enter the surface impoundment via pipelines. The Waste Analysis Plan, §9.10, is also responsive to this section.

4.9j)8)

RESPONSE (continued)

A Division-wide response pertaining to ignitable and reactive concerns was addressed in the General Volume I-A, §§9.9a) and 9.9b). Compliance with this Division-wide program is required by Dow guidelines.

4.9t) 7) Operations plan, including:

- a) Classification and estimated quantities of wastes to be handled;

RESPONSE

The liquid waste that flows through this surface impoundment is hazardous only due to corrosivity, which is identified by EPA I.D. number D002.

Based on 1984 flows, the flow through this surface impoundment averaged 2.2 MGD (million gallons per day).

4.9t)7) b) Methods and processes utilized:

Facility capacity for each disposal method;

Detailed description of each process or method;

Storage and disposal procedures:

Plans for receipt, checking, processing, segregation of incompatible wastes, and odor control; and

Life of each facility based on projected use;

Describe recordkeeping procedures, types of records to be kept, and use of the records by management to control the operation; and

Monitoring and recording of incoming wastes;

4.9t)7)

RESPONSE

Facility Capacity - This surface impoundment is not a disposal facility, but it is part of an NPDES treatment system to remove non-hazardous suspended solids in the effluent prior to discharge. The storage capacity of this impoundment is approximately 450,000 gallons.

Process Description - Process wastewater containing hydrochloric acid (HCl) is generated during the production of chlorinated polyethylene (CPE) at this plant. In addition to the HCl, this stream also contains non-hazardous suspended solids, which are composed of polyethylene and chlorinated polyethylene particles.

This process wastewater stream passes through the 100' x 75' x 8' deep surface impoundment which reduces the velocity of this stream, allowing the non-hazardous suspended solids to settle to the bottom.

The remaining effluent stream is discharged through the CPE Plant's NPDES-permitted Outfall 001 prior to its ultimate discharge through the Division's Final Outfall 021. At this point, the pH is continuously monitored and must be neutralized to a 6 - 9 pH range to be in compliance. The NPDES Permit number is LA0003301.

Plans for Waste Receipt, Checking, Processing Waste - This surface impoundment receives process wastewater only from the CPE Plant through an internal trench system. This impoundment receives dedicated process streams which are essentially uniform in chemical composition. No incompatible wastes enter this impoundment and there are no offensive odors. The ultimate treated effluent from this system is monitored for pH on a continuous basis.

Life of Facility - This facility is projected to operate until November, 1988.

4.9t)7)b)

RESPONSE (continued)

Recordkeeping Procedures - This impoundment is inspected daily and operation records are completed weekly. These records are routinely reviewed to ensure proper operation of the surface impoundment.

Additional details on recordkeeping can be found by referencing §9.5b) in this volume.

Incoming Waste - The incoming process wastewater to this surface impoundment is continuously monitored for pH. This impoundment receives dedicated process streams which are essentially uniform in chemical composition.

The flow entering this impoundment equals to effluent flow from the impoundment which is monitored continuously.

4.12 (2nd) Specific Part II information requirements for surface impoundments.

Except as otherwise provided in §§1.3d) and 9.1 and §§3.3b) and c), owners and operators of facilities that store, treat or dispose of hazardous waste in surface impoundments must provide the following additional information:

- a) A list of the hazardous wastes placed or to be placed in each surface impoundment;

RESPONSE

The CPE Plant surface impoundment contains only hazardous wastes which are hazardous because of the characteristic of corrosivity. The wastes are all generated in the CPE Plant and the presence of hydrochloric acid or caustic in the waste streams causes the pH to be either less than 2.0 or greater than 12.5 and thus a hazardous waste. These wastes enter the surface impoundment via a plant trench. Paragraph 9.10, Waste Analysis Plan, is also responsive to this section.

4.9t)7)b)

RESPONSE (continued)

Incoming Waste - Each truck load of incinerator ash is logged in at the landfill office, and these records become part of the NWLF records.

4.16 Specific Part II information requirements for landfills.

Except as otherwise provided in §§1.3d), 9.1, and §3.3b) and 3.3c), owners and operators of facilities that dispose of hazardous waste in landfills must provide the following additional information:

- a) A list of the hazardous wastes placed or to be placed in each landfill or landfill cell;

RESPONSE

Northwest Landfill first started receiving hazardous waste in 1981. From 1981 to 1984, several wastes were reported as being hazardous under the DNR reporting rules and under the protective reporting policy.

Under present Louisiana Hazardous Waste Regulations, the only hazardous waste landfilled is I-200 Incinerator ash.

- 4.16 b) Detailed plans and an engineering report describing how the landfill is or will be designed, constructed, operated and maintained to comply with the requirements of §14.2. This submission must address the following items as specified in §14.2:

- 1) The liner system and leachate collection and removal system;

RESPONSE

See §§14.2a)1) and 14.2a)2) of this permit volume.

- 4.16b) 2) Control of run-on;

RESPONSE

See §14.2c) of this volume.

4.9t)7)b)

RESPONSE (continued)

Detailed Description - The landfilling of hazardous waste at the NWLF is conducted in two stages.

Stage 1 disposal takes place in a series of cells that have the dimensions 12' x 15' x 2' (LxWxD). After a cell is filled, it is compacted and covered with 6" of dirt.

Stage 2 disposal is accomplished by placing the material in two-foot lifts above the Stage 1 cells. When filled, this two-foot lift will be covered with approximately six inches of dirt.

Ditches and slopes will be maintained to allow rapid runoff of rainwater from the landfill to our collection system.

This rainwater is then discharged through a proposed NPDES-permitted Internal Outfall 3001. The NPDES Permit number is LA0003301.

Plans for Receipt, Checking, and Processing Waste - Each truck load of incinerator ash will be logged and recorded prior to landfilling. Since incinerator ash is the only hazardous waste that is currently landfilled, processing plans and the segregation of incompatible waste do not apply.

The incinerator ash does not create any odor problems.

Life of Facility - Closure of this facility is expected to start by the end of 2005.

Recordkeeping Procedures - A map showing the exact location and dimensions and contents of each cell is maintained in the Environmental Operations 8010 Building. Additionally, each landfill load is logged in at the landfill office. All landfill area inspections are conducted at the frequencies so designated in §9.5 and the results recorded. All of this information will become a permanent part of the NWLF records, and is subject to routine reviews.

4.9t) 7) Operations plan, including:

- a) Classification and estimated quantities of wastes to be handled;

RESPONSE

Currently, the primary hazardous waste that is landfilled in the NWLF is incinerator ash from the rotary kiln incinerator (I-200). It is not considered a Category I or II waste (LHWR, Chapter 24) but it is considered hazardous by definition.

The yearly estimated quantity of incinerator ash to be landfilled is approximately 3,000 cu yds.

4.9t)7) b) Methods and processes utilized:

Facility capacity for each disposal method;

Detailed description of each process or method;

Storage and disposal procedures:

Plans for receipt, checking, processing, segregation of incompatible wastes, and odor control; and

Life of each facility based on projected use;

Describe recordkeeping procedures, types of records to be kept, and use of the records by management to control the operation; and

Monitoring and recording of incoming wastes;

RESPONSE

Capacity - Landfilling is the only disposal method that is utilized on this site. The remaining useable life of the NWLF is estimated to be three to six years.

Revision #1
October 14, 1985

EXHIBIT 7

TABLE 2

CLOSURE SCHEDULE

NORTHWEST LANDFILL (NWLf)

<u>Event</u>	<u>Days After Closure Initiated</u>
Remove Sump and Light Pole	10
Grade	20
Install Clay Cap and Dike	30
Install PVC Liner	55
Install Drainage Net	75
Install Geotextile Filter	85
Install Seeded Top Soil	90

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EXHIBIT 9

§14.2b)

CALCULATION OF THE TRANSMISSIVITY OF THE
PERVIOUS ZONE (40 - 50 FEET BELOW THE LAND SURFACE)

NORTHWEST LANDFILL (NWLF)

$$\text{Transmissivity} = T = Kb$$

K = coefficient of permeability
b = aquifer thickness

$$K \text{ vertical} = 1.72 \times 10^{-6} \text{ cm/sec to } 2.59 \times 10^{-6} \text{ cm/sec}$$

Assume - horizontal permeability equals 10 times the vertical.

$$K \text{ horizontal} = 1.72 \times 10^{-5} \text{ cm/sec to } 2.59 \times 10^{-5} \text{ cm/sec}$$

$$K \text{ horizontal} = .36 \text{ gal/day/ft}^2 \text{ to } .55 \text{ gal/day/ft}^2$$

$$T = .36 \text{ gal/day/ft}^2 \times 10 \text{ ft} = 3.60 \text{ gal/day/ft}$$

$$T = .55 \text{ gal/day/ft}^2 \times 10 \text{ ft} = 5.50 \text{ gal/day/ft}$$

CHAPTER 11

TANKS

VINYL II PLANT

- 11.1 Applicability -- The regulations in this Chapter apply to owners and operators of facilities that use tanks to treat or store hazardous waste, except as specified in §1.3d).

RESPONSE

Dow acknowledges this section.

- 11.2 Design and operating requirements

- a) Tanks must have sufficient shell strength (and closed tanks must have pressure controls such as vents) to assure that they do not collapse or rupture. The Administrative Authority will review the design of the tanks, including the foundation, structural support, seams, and pressure controls. The Administrative Authority shall require that a minimum shell thickness be maintained at all times to ensure sufficient shell strength. Factors to be considered in establishing minimum thickness include the width and height of materials of construction of the tank, and the specific gravity of the waste which will be placed in the tank. In reviewing the design of the tank and establishing a minimum thickness, the Administrative Authority shall rely upon appropriate industrial design standards and other available information.

RESPONSE

The hazardous waste handling equipment in the Vinyl II Plant is comprised of two vertical storage vessels. The two tanks are designated T-400 and T-410. The tanks are capable of storing 49,300 gallons and 375 gallons of organic waste materials, respectively. The waste materials handled in the storage tanks are produced in the Vinyl II Plant. No waste is received from other facilities.

11.2a)

RESPONSE (continued)

Tank T-400 is a storage tank for feed to the Vinyl II Plant thermal oxidizing unit. The feed streams to T-400 are heavy ends from the distillation of ethylene dichloride in ethylene dichloride production, and heavy ends from the distillation of vinyl chloride in vinyl chloride monomer production. The composition of the "heavies" mixture in T-400 is typically 15% EDC, 30% B-trichloroethane, 15% trichloroethylene and 15% tetrachloroethane, with carbonaceous organics comprising the remainder. The mixture's specific gravity averages 1.5. The flow of hazardous waste material through T-400 is typically 1200 - 1500 lb/hour.

Tank T-410 is a small receiver for waste materials generated by the plant's quality control lab. The lab waste materials are liquids from reagents, wet analysis and residual liquids from sample bottles. The composition of the mixture of waste material in T-410 is typically 50% EDC, 20% water, 10% chloroform, with methanol, pyridine, and B-trichloroethane comprising the remainder. The mixture's specific gravity averages 1.5. The tank contents (approximately 375 gallons) are fed usually once per month into the thermal oxidizer at a rate of 800 - 900 lb/hour.

Tank T-400 was designated in accordance with API 650 code. The tank is fabricated of SA-283, Grade C, carbon steel with a tensile strength of 12650 psi at metal temperatures of -20°F to 650°F. Exhibit 16 is an engineering type drawing for T-400 that provides additional data on the design and fabrication of the tank.

The original design thickness of the shell, top head, and cone bottom was 0.250 inches. The latest (1984) thickness measurements are shown in Exhibits 19 and 24. Tank T-400 thickness measurements indicate the vessel has a calculated service of 32 years based on 5.8 mils/year corrosion rate, and a minimum allowable thickness of 0.1875 inches.

Tank T-410 is a 375 gallon, cylindrical shaped tank, that was field designed and fabricated in Vinyl II Plant's maintenance shop. The tank shell and bottom are fabricated of one-half inch thick carbon steel plate. The tank's lid is made of one-quarter inch thick carbon steel plate. Exhibit 17, an engineering sketch of the tank, contains additional design and fabrication details including the nozzle schedule.

CHAPTER 11

TANKS

ENVIRONMENTAL OPERATIONS (I-200)

- 11.1 Applicability -- The regulations in this Chapter apply to owners and operators of facilities that use tanks to treat or store hazardous waste, except as specified in §1.3d).

RESPONSE

Dow acknowledges this section.

11.2 Design and operating requirements

- a) Tanks must have sufficient shell strength (and closed tanks must have pressure controls such as vents) to assure that they do not collapse or rupture. The Administrative Authority will review the design of the tanks, including the foundation, structural support, seams, and pressure controls. The Administrative Authority shall require that a minimum shell thickness be maintained at all times to ensure sufficient shell strength. Factors to be considered in establishing minimum thickness include the width and height of materials of construction of the tank, and the specific gravity of the waste which will be placed in the tank. In reviewing the design of the tank and establishing a minimum thickness, the Administrative Authority shall rely upon appropriate industrial design standards and other available information.

RESPONSE

The Tank Farm at the Louisiana Division's Environmental Operations facility contains five covered vertical storage vessels. These tanks provide storage for waste materials generated internally by Louisiana Division manufacturing plants, plus some Dow off-site generators. Four tanks, T-130, T-135, T-250, and T-255 have a holding capacity of approximately 20,000 gallons each. The fifth tank, T-401, has a capacity of 11,300 gallons. Tank T-130 is dedicated storage for organic contaminated waste waters; Tank T-135 for slop oils/suspended solids; Tank T-250 for lubricating oils/Dowanol* tars; Tank T-255 for flammable liquids. Specific gravities of the materials handled range from 0.6 to 1.25. Tank T-401 is associated with a slurry feed system and stores materials with a gravity that ranges between 1.0 to 1.5.

*TRADEMARK OF THE DOW CHEMICAL COMPANY

11.2a)

RESPONSE (continued)

All five tanks were designed in accordance with API Code #650. The shells and heads of each tank are fabricated of SA-285, Grade C carbon steel with a minimum tensile strength of 13,750 psi. Exhibits 32 through 35 are engineering type drawings of storage vessels, T-130, T-135, T-250, and T-255, that include design data concerning nozzle locations and schedules, dimensional measurement data and other tank design criteria. Exhibits 36 and 37 provide additional information concerning tank nozzle service. The original design thickness of each tank was 0.3125 inches (shell), and head thicknesses of 0.250 inches (T-130), 0.3125 inches (T-135, T-250, T-255). Most recent thickness measurements taken in 1985 are shown in Exhibit 38. This exhibit also lists other physical characteristic data for each vessel.

Design criteria for Tank T-401 is provided in Exhibits 1 through 7, Cycle 2, Volume X-E. The locations, schedules and sizes of nozzles for this vessel are shown on Exhibits 1 and 2 of the above exhibits. The original shell and head design thickness for this tank is 0.375 inches. Because this tank is new, thickness measurements and corrosion rate data are not available in Exhibit 38. Exhibits 8, 9, and 10, Cycle 2, Volume X-E are vendor drawings of T-401 storage vessel showing nozzle locations and schedules, dimensional measurement data and other tank design criteria.

Exhibit 39 lists appropriate operating type data including specific gravities for the materials in each tank. The specific gravities shown are for current waste materials. These values will vary based on the mix of waste materials being processed.

The liquid level in T-130, T-135, T-250, and T-255 is alarmed at 85% of the straight side measurement (approximately 20 feet), and approximately 18 feet for T-401 Tank. Redundant high level instruments in each tank provide back-up alarms at two to three feet below roof height.

CHAPTER 11

TANKS

SOLVENTS PLANT

- 11.1 Applicability -- The regulations in this Chapter apply to owners and operators of facilities that use tanks to treat or store hazardous waste, except as specified in §1.3d).

RESPONSE

Dow acknowledges this section.

11.2 Design and operating requirements

- a) Tanks must have sufficient shell strength (and closed tanks must have pressure controls such as vents) to assure that they do not collapse or rupture. The Administrative Authority will review the design of the tanks, including the foundation, structural support, seams, and pressure controls. The Administrative Authority shall require that a minimum shell thickness be maintained at all times to ensure sufficient shell strength. Factors to be considered in establishing minimum thickness include the width and height of materials of construction of the tank, and the specific gravity of the waste which will be placed in the tank. In reviewing the design of the tank and establishing a minimum thickness, the Administrative Authority shall rely upon appropriate industrial design standards and other available information.

RESPONSE

The hazardous waste handling equipment in the Louisiana Division's Solvents manufacturing plant is comprised of seven storage vessels. The seven tanks are designated D-13, D-15, D-92A, V-201, D-700, D-701, and T-1001. The seven tanks are capable of storing 833,231 pounds of organic waste material. The waste materials being stored in these vessels are mainly heavy ends from the distillation of ethylene dichloride, vinyl chloride, carbon tetrachloride, perchloroethylene and trichloropropene. Constituents of these waste materials are primarily chlorinated aliphatic hydrocarbon compounds. Exhibit 31 contains engineering type drawings for each of the seven vessels. Tanks D-13 and D-15 are horizontal storage vessels fabricated from

11.2a)

RESPONSE (continued)

Monel, Alloy 400 steel and SA-285, Grade C, carbon steel, respectively. The tanks are utilized as storage vessels for chlorinated waste by-products from the per-tet process. The main components in the feed stream to these tanks are hexachlorobenzene, hexachlorobutadiene, hexachloroethylene, and perchloroethylene. The organic wastes in these tanks are pumped continuously to the Solvents Plant's thermal oxidizer (TOX) for high temperature oxidation to gaseous products.

Tank 92-A is a horizontal, batch-operated storage vessel fabricated from SA-285, Grade C, carbon steel. This vessel receives small quantities of organic wastes collected in drums during equipment clean-up, and organic liquids that accumulate in the process vent header system knockout pot. The contents of this storage tank are batch transferred to D-701, the heavies feed tank.

Tanks T-1001 and V-201 are batch-operated, organic storage vessels fabricated from SA-285, Grade C, carbon steel. T-1001 is a vertical tank, and V-201 is a horizontal tank. T-1001 receives the condensed overhead stream from the organics stripper column. Stripper overhead composition is typically 95% water and 5% organics. The organic phase in T-1001 is batch transferred to D-701, and the lower density water layer gravity flows to V-201. In addition to the water phase from T-1001, V-201 receives all liquids (mainly rainwater) collected by the process area sumps. V-201's water phase containing trace organics is recycled back to the organic stripper column, and the heavier organic layer is batch transferred to D-701.

Tank D-700 is a vertical storage vessel fabricated from Monel, Alloy 400 steel. This vessel receives "heavy ends" from the production of ethylene dichloride and propylene dichloride, and "heavies" from the production of methyl chloride and trichloropropene. The contents of this tank are batch transferred to D-701, the heavies feed tank.

Tank D-701 is a vertical piece of Kynar® lined pipe that functions as a surge controlling unit to dampen the effect of multiple feeds to the thermal oxidizer. D-701 receives waste organics from V-201, T-1001, D-700, and "heavy ends" from the distillation of vinyl chloride. D-701 is continuously fed by centrifugal pump to the TOX unit. Exhibit 32 provides simplified process flow diagrams for each of the hazardous waste storage tank systems.

P 018 584 433

RECEIPT FOR CERTIFIED MAIL

NO INSURANCE COVERAGE PROVIDED
NOT FOR INTERNATIONAL MAIL

(See Reverse)

U.S.G.P.O. 1984-446-014

PS Form 3800, Feb. 1982

Sent to <i>Shin Ahn</i>	
Street and No. <i>PRC Engr.</i>	
City, State and ZIP Code <i>Chicago, Ill.</i>	
Postage	\$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to whom and Date Delivered	
Return receipt showing to whom, Date, and Address of Delivery	
TOTAL Postage and Fees	\$
Postmark or Date <i>9/4/86</i>	

PS Form 3811, July 1983 447-845

SENDER: Complete items 1, 2, 3 and 4.

Put your address in the "RETURN TO" space on the reverse side. Failure to do this will prevent this card from being returned to you. The return receipt fee will provide you the name of the person delivered to and the date of delivery. For additional fees the following services are available. Consult postmaster for fees and check box(es) for service(s) requested.

- ☒ Show to whom, date and address of delivery.
- ☐ Restricted Delivery.

3. Article Addressed to:
Shin Ahn *600*
PRC Engr.
Chicago, Ill. 60601

4. Type of Service:	Article Number
☐ Registered ☒ Certified ☐ Express Mail	☐ Insured ☐ COD <i>584433</i>

Always obtain signature of addressee or agent and
DATE DELIVERED

5. Signature - Addressee
X *Shin Ahn*

6. Signature - Agent
X

7. Date of Delivery
09-08-86

8. Addressee's Address (ONLY if requested and fee paid)
303 E. Wacker *600*
60601

DOMESTIC RETURN RECEIPT

DO 143988
CONFIDENTIAL



DOW CHEMICAL U.S.A.

September 4, 1986

LOUISIANA DIVISION
P. O. BOX 180
PLAQUEMINE, LOUISIANA 70765-0180
504 389-8000

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mr. Shin Ahn
PRC Engineering
303 East Wecker Drive
Suite 600
Chicago, Illinois 60601

HAZARDOUS WASTE OPERATING LOGS
DOW CHEMICAL U.S.A., LOUISIANA DIVISION

Dear Mr. Ahn:

Enclosed with this letter is the information you requested. Each Dow hazardous waste facility has its own method of keeping track of their waste disposal activity.

Appendix I shows the type of system used by our Chlorinated Polyethylene Plant when disposing of waste at our solid waste landfill.

Appendix II shows the disposal logs used to document disposal at our hazardous waste landfill (Northwest Landfill). As you can see from these log sheets the primary material being disposed of at this facility is incinerator ash.

Appendix III shows the information taken from Dow's 1986 Hazardous Waste Disposal Tax Returns. This is one of the mechanisms that is used to keep track of our surface impoundment treatment/storage processes.

If you have any questions pertaining to this information, please feel free to call me at 504-389-6407.

Sincerely,

Charles Goldsmith
Environmental Services

Enclosure

sb

DO 143989
CONFIDENTIAL

Appendix I

ENVIRONMENTAL OPERATIONS
DUMP OF DATA FROM BILLING SYSTEM FILES.
DATES: 7-1-86 THRU 7-31-86

07-AUG-86

DAY	REF	WASTE	ACNT	DEST TRUCK	TYPE	UNIT	GROSS	CHARGE
07/10/86	32	15	238	5 ovr	ticket	0	24000.0	24000.0

Appendix *1/2*

AUSTRALIA POINT LANDFILL

DISPOSAL LOG

OPERATOR: *Antoine*

X NORTHWEST LANDFILL

DATE: *11-18-80*

LOAD NUMBER	DRIVER/OPERATOR	TRUCK NUMBER	PLANT OR BLOCK NO.	MATERIAL	DISPOSITION (CELL #)	WEIGHT	COMMENTS
1	<i>Ant</i>	<i>702</i>	<i>311 R</i>	<i>Asphalt</i>		<i>1760</i>	
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							

DO 143991
CONFIDENTIAL

AUSTRALIA POINT LANDFILL

DISPOSAL LOG

OPERATOR: Datsine

X NORTHWEST LANDFILL

DATE: 5-1-80

LOAD NUMBER	DRIVER/OPERATOR	TRUCK NUMBER	PLANT OR BLOCK NO.	MATERIAL	DISPOSITION (CELL #)	WEIGHT	COMMENTS
1	1112	222	222	1	340	222	✓
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							

DO 143992
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AUSTRALIA POINT LANDFILL

DISPOSAL LOG

OPERATOR:

11-11-71

X NORTHWEST LANDFILL

DATE:

4-1-80

LOAD NUMBER	DRIVER/OPERATOR	TRUCK NUMBER	PLANT OR BLOCK NO.	MATERIAL	DISPOSITION (CELL #)	WEIGHT	COMMENTS
1	Terry	506	Ch TP	Ash	334	5710	
2	Terry	506	Ch TP	Ash	334	5750	
3	Terry	506	Cell 118	Ash	334	870	
4	Terry	506	Cell 118	Ash	334	870	
5	Terry	506	Ch TP	Ash	334	5700	
6	Terry	506	Ch TP	Ash	334	6530	
7	Mike	222	Ch TP	Ash	334	4040	
8	Terry	506	Ch TP	Ash	334	6430	
9	Terry	506	Cell 118	Ash	334	1350	
10	Terry	506	Cell 118	Ash	334	6390	
11	Terry	506	Cell 118	Ash	334	1650	
12							
13					111 #234	45280	
14							
15							
16							
17							

DO 143993
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AUSTRALIA POINT LANDFILL

DISPOSAL LOG

OPERATOR: 7th

☒ NORTHWEST LANDFILL

DATE: 3-1-85

LOAD NUMBER	DRIVER/OPERATOR	TRUCK NUMBER	PLANT OR BLOCK NO.	MATERIAL	DISPOSITION (CELL #)	WEIGHT	COMMENTS
1	Mike	732	Chlorine	Asbestos	332	5870	
2	Mike	732	Chlorine	Asbestos	332	4000	
3							
4							
5							
6							
7							
8							
9							
0					111#332	9870	
1							
2							
3							
4							
5							
6							
7							

DO 143994
CONFIDENTIAL

AUSTRALIA POINT LANDFILL

DISPOSAL LOG

OPERATOR:

C. Landry

X NORTHWEST LANDFILL

DATE:

2-1-85

LOAD NUMBER	DRIVER/OPERATOR	TRUCK NUMBER	PLANT OR BLOCK NO.	MATERIAL	DISPOSITION (CELL #)	WEIGHT	COMMENTS
1	<i>Greag</i>	<i>888</i>	<i>CWTP</i>	<i>Ash</i>	<i>330</i>	<i>8140</i>	
2	<i>1 Greag</i>	<i>888</i>	<i>CWTP</i>	<i>Ash</i>	<i>330</i>	<i>6880</i>	
3	<i>Antoine</i>	<i>732</i>	<i>CWTP</i>	<i>Ash</i>	<i>330</i>	<i>4410</i>	
4	<i>Ant.</i>	<i>732</i>	<i>CWTP</i>	<i>Ash</i>	<i>330</i>	<i>4380</i>	
5	<i>Greag</i>	<i>732</i>	<i>CWTP</i>	<i>Ash</i>	<i>330</i>	<i>7600</i>	
6	<i>Terry</i>	<i>806</i>	<i>CWTP</i>	<i>Ash</i>	<i>330</i>	<i>1090</i>	
7							
8							
9							
10					<i>Cell H-330</i>	<i>32500</i>	
11							
12							
13							
14							
15							
16							
17							

DO 143995
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AUSTRALIA POINT LANDFILL

DISPOSAL LOG

OPERATOR:

A Landry

X NORTHWEST LANDFILL

DATE:

1-10-85

LOAD NUMBER	DRIVER/OPERATOR	TRUCK NUMBER	PLANT OR BLOCK NO.	MATERIAL	DISPOSITION (CELL #)	WEIGHT	COMMENTS
1	Terry	806	CWTP	Ash	328	6940	
2	Benny	732	CWTP	Ash	328	8780	
3	Benny	732	CWTP	Ash	328	6260	
4	Terry	806	CWTP	Ash	328	6760	
5	Mike	888	CWTP	Ash	328	9620	
6	Terry	806	CWTP	Ash	328	9540	
7							
8							
9							
10					cell # 328	47,900	
11							
12							
13							
14							
15							
16							
17							

DO 143996
CONFIDENTIAL

APPENDIX III

1986 HAZARDOUS WASTE DISPOSAL TAX RETURNS

(FILED 7/14/86)

SURFACE IMPOUNDMENT	1ST QRT.	2ND QRT.	3RD QRT.	4TH QRT.
CHLORINE PLANT	787.09	449.94	422.44	213.01
CHLORINATED POLYETHYLENE PLANT	2979.38	2661.72	2304.41	2157.32
CHLOR-ALKALI II PLANT	<u>101.40</u>	<u>413.90</u>	<u>115.10</u>	<u>532.80</u>
TOTAL TREATED (TONS)	3867.87	3525.56	2841.95	2903.13
YEARLY TOTAL (TONS)	13138.51			

WASTE TYPE D002

CG:sb
9/3/86

DO 143997
CONFIDENTIAL



DOW CHEMICAL U.S.A.

August 27, 1986

LOUISIANA DIVISION
P. O. BOX 150
PLAQUEMINE, LOUISIANA 70765-0150
504 389-8000

FEDERAL EXPRESS

PRC Engineering
303 East Wecker Drive
Suite 600
Chicago, Illinois 60601

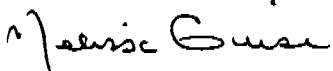
Dear Mr. Ahn and Ms. Yanada:

On August 25, 1986, PRC Engineering, contractors for the EPA Region VI, conducted a "lost interim status inspection" at the Louisiana Division of Dow Chemical. Below is a list of additional information which was requested. This information is included in the referenced attachments:

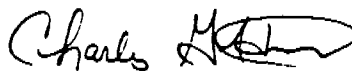
1. Louisiana Division RCRA Hazardous Waste Permit (Attachment 1)
2. Louisiana Division RCRA Hazardous Waste Financial Responsibility (Attachment 2)
3. Potentiometric Maps for Chlorinated Polyethylene Surface Impoundment (Attachment 3)
4. 1985 RCRA Compliance Inspection conducted by PRC Engineering (Attachment 4)
5. Operating and Process Information on RCRA Units (Attachment 5)
6. Solid Waste Management Units Map (Attachment 6)
7. Subsurface Water Control Map (Attachment 7)
8. Operating Logs for RCRA Facilities (currently being compiled. Will be sent later.

If you have any questions regarding this information or need additional information, please do not hesitate to contact us.

Sincerely,



Melissa Guise
Environmental Services



Charles Goldsmith
Environmental Services

Attachments
sb

UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY

This is to certify that Shin Ahn
(an employee of PRC Engineering)
whose signature and photograph appear below, is a duly designated inspector
for the Environmental Protection Agency. This person is authorized to draw
samples, secure information and records, and otherwise make investigations
in the states of Arkansas, Louisiana, New Mexico, Oklahoma, and Texas in
connection with enforcement of: **The Resource Conservation
and Recovery Act.**

Certificate Number: 0094
Part 1 of 2

Issue Date: JUL 16 1986
Expiration Date: SEP 30 1986



This card is for official use only in identifying
the employee named hereon, who accepts full respon-
sibility for its safeguard and proper use and for
its proper surrender on termination or demand by
proper authorities. Any counterfeiting, alteration
reproduction or misuse is a violation of Federal
law (sections 49 and 701, Title 18, United States
Code). For confirmation, call 214-267-2712.

Certificate Number: 0094

Part 2 of 2

Shin Ahn
Signature of Inspector
Francis E. Sullivan
Signature of Deputy Regional Administrator

INSPECTION CHECKLIST

LOIS INSPECTIONS - REGION VI

Facility Name: _____

EPA I.D. No: _____

Inspection Dates: _____

Inspector(s): _____

Facility
Representative(s): _____

Enforcement
Officer: _____

<u>Completed</u>	<u>Item</u>	<u>Section</u>
_____	General Information	A
_____	Executive Summary	B
_____	Summary Report	C
_____	List of Documents	D
_____	Hazardous Waste Land Disposal Unit Description	E
_____	SWMU Description	F
_____	Organization Chart	
_____	Facility Drawing(s)	

GENERAL INFORMATION

Facility EPA I.D. Number: _____

Facility State I.D. Number (Describe): _____

Facility Name: _____

Facility Primary Contact (Name and Title): _____

Facility Mailing Address:

(Street) _____

(City) _____

(State) _____

(Zip) _____

Facility Location:

(Street) _____

(City) _____

(State) _____

(County) _____

(Zip) _____

Other Facility Contacts:

Name: _____ Title: _____

Telephone: _____ Responsibility: _____

Name: _____ Title: _____

Telephone: _____ Responsibility: _____

Name: _____ Title: _____

Telephone: _____ Responsibility: _____

Name: _____ Title: _____

Telephone: _____ Responsibility: _____

EXECUTIVE SUMMARY

EPA I.D. Number _____

SUMMARY REPORT

Facility Name: _____

HAZARDOUS WASTE NOTIFICATION STATUS

DOCUMENT

Original Submitted ☐ No ☒ Yes Date Aug 8, 1980

Amendment(s) ☐ No ☒ Yes Date(s) 2/27/86

*Has waste not. 2/27/86
this was update of original form, later form
Describe Amendments: was done #1's on it. Waste 2nd in office
add additional waste must submit HWI form.
There are complete additional waste on here also waste (explan)
waste req caused more wastes to be on the list (
we would submit a request for change to this waste list
to get it updated from the state) so that we do not have to
file a permit even though change type of wastes so we*

PART A APPLICATION STATUS

Original Submitted ☐ No ☒ Yes Date Nov 3, 1980

Changes ☐ No ☒ Yes Date(s) OCT 15 1981

Approved Changes ☐ No ☐ Yes Date(s) _____

During Interim Status ☐ Undetermined - no new back

Describe Changes: _____

LOIS CERTIFICATION

Submitted ☐ No ☐ Yes Date _____

Certified Groundwater ☐ No ☐ Yes

Certified Financial ☐ No ☐ Yes ☐ Partial

EPA I.D. Number _____

DOCUMENT

LOIS VERIFICATION

Groundwater Monitoring System:Waiver Approved ☒ No ☐ Yes

Date _____

Last CME Conducted ☐ None ☒ YesDate/ 6/25/85

Agency _____

*comparative
monitor evaluation*

 Enforcement Action ☒ No ☐ Yes
 Outstanding as of
 November 8, 1985 ☐ Unknown
Date
Issued _____GWM System Adequate ☐ No ☒ YesJudged by LOEQ☐ Unknown

Inadequacies: _____

FinancialC/PC Assurance ☐ No ☒ YesMechanism: Financial TestAmount Closure: 3.696 MEffective Period: 12/21/86Postclosure: 379 MSudden Liability ☐ No ☒ Yes ^{45M}☐ Variance Document _____Non-Sudden Liability ☐ No ☒ Yes ^{810M}☐ Variance Document _____Financial Adequate ☐ No ☐ Yes

Judged by _____

Inadequacies: _____

Part B ApplicationDate of Call In Oct 15, 1984Date of Submittal April 9, 1985 Part I, Part II Hand DeliveredNOD Sent ☐ No ☐ Yes

Date(s) _____

Complete ☐ No ☒ YesDate Aug 14, 1985Deficiencies as of November 8, 1985: Oct 14, 1985

EPA I.D. Number _____

CLOSURE PLAN

1. Name of Unit:

Unit _ of _ of Section E

Submitted for Approval ☐ No ☐ Yes Date _____

Approved ☐ No ☐ Yes Date _____

Implementing on Schedule? ☐ No ☐ Yes

Certified Closed by P.E. ☐ No ☐ Yes Date _____

2. Name of Unit:

Unit _ of _ of Section E

Submitted for Approval ☐ No ☐ Yes Date _____

Approved ☐ No ☐ Yes Date _____

Implementing on Schedule? ☐ No ☐ Yes

Certified Closed by P.E. ☐ No ☐ Yes Date _____

3. Name of Unit:

Unit _ of _ of Section E

Submitted for Approval ☐ No ☐ Yes Date _____

Approved ☐ No ☐ Yes Date _____

Implementing on Schedule? ☐ No ☐ Yes

Certified Closed by P.E. ☐ No ☐ Yes Date _____

4. Name of Unit:

Unit _ of _ of Section E

Submitted for Approval ☐ No ☐ Yes Date _____

Approved ☐ No ☐ Yes Date _____

Implementing on Schedule? ☐ No ☐ Yes

Certified Closed by P.E. ☐ No ☐ Yes Date _____

EPA I.D. Number _____

CLOSURE PLAN (Continued)

5. Name of Unit:

Unit _ of _ of Section E

Submitted for Approval ☐ No ☐ Yes Date _____

Approved ☐ No ☐ Yes Date _____

Implementing on Schedule? ☐ No ☐ Yes

Certified Closed by P.E. ☐ No ☐ Yes Date _____

6. Name of Unit:

Unit _ of _ of Section E

Submitted for Approval ☐ No ☐ Yes Date _____

Approved ☐ No ☐ Yes Date _____

Implementing on Schedule? ☐ No ☐ Yes

Certified Closed by P.E. ☐ No ☐ Yes Date _____

EPA I.D. Number _____

RCRA ACTIVITIES AS OF NOVEMBER 8, 1985

Generator ☐ No ☒ Yes Accumulation time <90 days
☒ Container ☒ Tank

Transporter ☒ No ☐ Yes

Storage in tanks ☐ No ☒ Yes - >90 included in Part II

Storage in containers ☐ No ☒ Yes

Treatment Other Than Land Disposal ☐ No

Codes: ☐ T01 ☒ T03 ☐ T04 ^{Incineration}

Comments: 3 incinerators

EPA I.D. Number _____

RCRA ACTIVITIES AS OF NOVEMBER 8, 1985
(Continued)

Land Disposal

Codes:

☐ No
Northwest Landfill
☐ D80 ☒ D81 ☐ D83 ☐ T02
☐ S03 ☐ S04 ☐ T03 ☐ T04

Comments: _____

UIC (D79) -

underground injection
Exemptions ☒ No ☐ Yes
☐ No ☒ Yes

Elementary
Neutralization Unit

☒ No ☐ Yes

Units: _____

Recycle

☐ No ☒ Yes

Units: _____

Small Quantity
Generator

☒ No ☐ Yes

Units: _____

Other Exemption

☒ No ☐ Yes

Units: _____

Comments: *Close loop recycling process - exempt this was listed
in federal registration - we have one
letter sent to USEPA addressing this and no
response. Part B Hexane Recovery System.*

EPA I.D. Number _____

LIST OF DOCUMENTS

1. Title _____
Author _____
Date _____ Number of Pages _____
Reviewed _____ Copied _____
Subject Relevance _____

2. Title _____
Author _____
Date _____ Number of Pages _____
Reviewed _____ Copied _____
Subject Relevance _____

3. Title _____
Author _____
Date _____ Number of Pages _____
Reviewed _____ Copied _____
Subject Relevance _____

4. Title _____
Author _____
Date _____ Number of Pages _____
Reviewed _____ Copied _____
Subject Relevance _____

EPA I.D. Number _____

LIST OF DOCUMENTS (Continued)

5. Title _____
Author _____
Date _____ Number of Pages _____
Reviewed _____ Copied _____
Subject Relevance _____

6. Title _____
Author _____
Date _____ Number of Pages _____
Reviewed _____ Copied _____
Subject Relevance _____

7. Title _____
Author _____
Date _____ Number of Pages _____
Reviewed _____ Copied _____
Subject Relevance _____

8. Title _____
Author _____
Date _____ Number of Pages _____
Reviewed _____ Copied _____
Subject Relevance _____

EPA I.D. Number _____

LIST OF DOCUMENTS (Continued)

9. Title _____
Author _____
Date _____ Number of Pages _____
Reviewed _____ Copied _____
Subject Relevance _____

10. Title _____
Author _____
Date _____ Number of Pages _____
Reviewed _____ Copied _____
Subject Relevance _____

11. Title _____
Author _____
Date _____ Number of Pages _____
Reviewed _____ Copied _____
Subject Relevance _____

12. Title _____
Author _____
Date _____ Number of Pages _____
Reviewed _____ Copied _____
Subject Relevance _____

EPA I.D. Number _____

USE SEPARATE SHEET FOR EACH UNIT

HAZARDOUS WASTE LAND DISPOSAL UNIT DESCRIPTION

Unit No. 1 of _____

1. Facilities Name of Unit: Northwest Landfill
2. Purpose/Mode of Operation: Aze. Waste Disposal, primarily incinerator ash
3. Process Code: D81 (✓)
4. Design Capacity: 3,000 yd³ 3-6 yr

(Cite Verification) _____

Volume 300 x 300 x 20 ft = 5.4 M

Rate _____

Depth of unit 2-3 ft b/s.

Depth to ground water 6 ft b/s.

5. Date of Existence: _____

(Cite Verification) _____

request operating records

6. Dates of Last Hazardous and/or Nonhazardous Waste Addition: ongoing

(Cite Verification) _____

operating records. Chlorine cell liquid & waste liquid gas out five; waste

7. Closure Plan Submittal Date: April 15, 1985

8. Hazardous Waste Code(s) Handled: ash + has no id # sorry KUN 1 (no F, D or U #)

(Cite Verification) Describe: _____

list from vol X-A Exhibit 6 was deposited at NWLF, all waste deposited & do not have a code #

will send a copy to verify with code.

EPA I.D. Number _____

Unit No. _____ of _____

9. Non-hazardous Waste Handled: Chlorine cell

2 boxes, 2nd container, said

10. Provide Narrative of History of Operation Since 11-19-80; Cite References:

Nov. 1982, 1004F - not operate in 1981

11. Field Observations: _____

EPA I.D. Number _____

USE SEPARATE SHEET FOR EACH UNIT

SWMU DESCRIPTION

Unit No. _____ of _____

1. Name of Unit: _____

2. Purpose/Associated Processes: _____

3. Type/Amount of Waste Received: _____

4. Field Observation: _____

USE SEPARATE SHEET FOR EACH UNIT

HAZARDOUS WASTE LAND DISPOSAL UNIT DESCRIPTIONUnit No. 1 of 1

1. Facilities Name of Unit: CPE
2. Purpose/Mode of Operation: Haz waste storage & for 2 days treatment in liquid out of it is treated
3. Process Code: 504 Storage surface imp
4. Design Capacity: 2.2 M gal/day flow through 450,000 gal
(Cite Verification) _____
Volume 100' x 75' x 8'
Rate 2.2 M gal/day flow through
Depth of unit 8'
Depth to ground water 2-4' (wet) 6-8' (dry) well in deep & no liner shallow in
5. Date of Existence: 1975
(Cite Verification) operating records (did not show copy)

6. Dates of Last Hazardous and/or Nonhazardous Waste Addition: ongoing, daily
(Cite Verification) operating records

7. Closure Plan Submittal Date: April 15, 1985
8. Hazardous Waste Code(s) Handled: D02 Corrosive
(Cite Verification) Describe: operating knowledge

EPA I.D. Number _____

Unit No. _____ of _____

9. Non-hazardous Waste Handled: Chlorinated polyethylene
particulates that settle out of solution

10. Provide Narrative of History of Operation Since 11-19-80; Cite References:

11. Field Observations: _____

USE SEPARATE SHEET FOR EACH UNIT

HAZARDOUS WASTE LAND DISPOSAL UNIT DESCRIPTIONUnit No. 1 of 1

1. Facilities Name of Unit: Chlorine plant
2. Purpose/Mode of Operation: Storage soil
3. Process Code: _____
4. Design Capacity: 1.6 M gal

(Cite Verification) _____

Volume 222' x 215' x 12'Rate 30,650 ton/moDepth of unit 5' blsDepth to ground water 3-5' bls

5. Date of Existence: 1960 initial, 1975 will need

(Cite Verification) verify; initial 15 yr brine
storage line converted to
hot water storage

6. Dates of Last Hazardous and/or Nonhazardous Waste Addition: no gain

(Cite Verification) _____

7. Closure Plan Submittal Date: April 15, 1985
8. Hazardous Waste Code(s) Handled: DOZ

(Cite Verification) Describe: _____

concrete line no leachate collection
will be closed

EPA I.D. Number _____

Unit No. _____ of _____

9. Non-hazardous Waste Handled: none

10. Provide Narrative of History of Operation Since 11-19-80; Cite References:

copy

11. Field Observations: _____

EPA I.D. Number _____

USE SEPARATE SHEET FOR EACH UNIT

HAZARDOUS WASTE LAND DISPOSAL UNIT DESCRIPTION

Unit No. 1 of 1

1. Facilities Name of Unit: CAIT

2. Purpose/Mode of Operation: haz waste storage DOT

3. Process Code: S-04 storage surface impoundment

4. Design Capacity: 1.9 m gal max.

(Cite Verification) _____

Volume 449' x 116 6" x 7' 6"

Rate 12,510 ton/month

Depth of unit 2'

Depth to ground water 2-3' b15

5. Date of Existence: 1982

(Cite Verification) generator logs copy initial copy 9

current copy

6. Dates of Last Hazardous and/or Nonhazardous Waste Addition: on going

(Cite Verification) _____

7. Closure Plan Submittal Date: April 15, 1986

8. Hazardous Waste Code(s) Handled: 002

(Cite Verification) Describe: _____

EPA I.D. Number _____

Unit No. _____ of _____

9. Non-hazardous Waste Handled: none
no expansion, spill etc.
line 45mil CPE reinforced liner w/ leachate
collection system

10. Provide Narrative of History of Operation Since 11-19-80; Cite References:

make copy

11. Field Observations: _____

EPA PRELIMINARY ASSESSMENT AND SITE INVESTIGATION

July 1 and 2, 1986

AGENDA

Environmental Operations Plant

EC-1 & EC-2

UNOX/Clarifiers System

Northwest Landfill Cells #1 and #2

Australia Point Landfill

Solvents Plant

Tank Storage

Shot Pond

Light Hydrocarbons I, II, III Plants

LHC III Surface Impoundment

LHC II Surface Impoundment

API Separator

Cell Service Plant

Impoundment 50

Asbestos Wash Area

Polyethylene B Plant

Surface Impoundment Closure

Cellulose Plant

Surface Impoundment Closure

Methocel Characterization

Coal Slurry Production Plant

Surface Impoundment Closure

Tank Car Cleaning

Products/Waste Managed

Release Controls

Vinyl II Plant

Surface Impoundment Status

Temporary Storage Facilities

Site Inspections

CG:sb
6/30/86

SOLID WASTE MANAGEMENT UNIT: Surface Impoundment (EC-1)

FACILITY (BLOCK#): Environmental Operations (Block 80)

USE: Storage of division's wastewater (non-hazardous) for treatment

STATUS: In operation, no closure planned. This facility is currently operating under Interim Permit No. IP-0175-A.

MATERIALS OF CONSTRUCTION: A single chlorinated polyethylene liner

DIMENSIONS: 660' x 660' x 7'
(LxWxD)

CAPACITY: 19 MM Gallons
6,000 gal/min not continuous

CONTENTS (QUANTITY/VOLUME): Wastewater containing traces of
7 prod. facilities feed this facility; glycerol, glycerol I, vinyl II, Dioxane, Tank car cleaning, Cell service biodegradable waste from production facilities

HAZARDOUS WASTE/CONSTITUENTS: Non-hazardous

DISPOSAL DATES: 1978 - Present

OTHER COMMENTS: This facility has two monitoring wells that are used in conjunction with a leachate collection system to detect releases.

3 additional wells added

SOLID WASTE MANAGEMENT UNIT: Auxiliary Tank (EC-2)

FACILITY (BLOCK #): Environmental Operations (Block 80)

USE: Storage of Division's non-hazardous wastewater for treatment

STATUS: In operation, no closure planned

MATERIALS OF CONSTRUCTION: Concrete lined

DIMENSIONS: 500' x 500' x 7'
(LxWxD)

CAPACITY: 11 MM gallons

CONTENTS (QUANTITY/VOLUME): Wastewater containing traces of
biodegradable waste from production
facilities

HAZARDOUS WASTE/CONSTITUENTS: Non-hazardous

DISPOSAL DATES: 1984 - Present

OTHER COMMENTS: This facility is used for wastewater treatment
equalization prior to its treatment.

CG:sb
6/30/86

SOLID WASTE MANAGEMENT UNIT: UNOX/Clarifiers System

FACILITY (BLOCK#): Environmental Operations (Block 80)

USE: Wastewater Treatment (Biological Oxidation) Unit

STATUS: In operation.

MATERIALS OF CONSTRUCTION: Concrete

DIMENSIONS: Clarifier - 130' Diameter; 13' Side Wall Depth
(LxWxD) UNOX Reactor - 12 Compartments @
41' x 41' x 12' D

VOLUME: 1.85 MM Gallons (UNOX)
1.50 MM Gallons (Clarifiers)

CONTENTS (QUANTITY/VOLUME): Wastewater containing
biological mass

HAZARDOUS WASTE/CONSTITUENTS: Non-hazardous

DISPOSAL DATES: 1976 - Present

SOLID WASTE MANAGEMENT UNIT: Inactive Landfill

FACILITY (BLOCK#): Northwest Landfill (Cell #1 and #2)

USE: Disposal of non-hazardous waste

STATUS: Inactive, closed and capped with clay

MATERIALS OF CONSTRUCTION: Earthen

DIMENSIONS: Cell 1 (9 acres, 12'deep)
(LxWxD) Cell 2 (4 acres, 10'deep)

CAPACITY: Cell 1 - 4,704,480 ft³
Cell 2 - 1,742,400 ft³

CONTENTS (QUANTITY/VOLUME): See comments

HAZARDOUS WASTE/CONSTITUENTS: Non-hazardous

DISPOSAL DATES: 1975 - 1981

OTHER COMMENTS: These two landfill cells contain no hazardous waste. Six wells are used for groundwater monitoring.

WASTE LANDFILLED AT NORTHWEST LANDFILL

CHLORINATED POLYETHYLENE

METHOCEL®/CELLULOSE PULP

CARBON

ASBESTOS CONTAMINATED CELLS

COAL

EMPTY CONTAMINATED DRUMS

ANTIFREEZE

ALUMINA

MISCELLANEOUS PLASTICS

* TRADEMARK OF THE DOW CHEMICAL COMPANY

DO 144026
CONFIDENTIAL

SOLID WASTE MANAGEMENT UNIT: Active Landfill

FACILITY (BLOCK#): Australia Point Landfill

USE: Disposal of construction materials, non-hazardous water insoluble materials (i.e. steel, brick, concrete, asphalt roofing, lumber, plastic, etc.)

STATUS: Partially closed, complete closure expected in 1985

MATERIALS OF CONSTRUCTION: Earthen

DIMENSIONS: 19 acres
(LxWxD)

CONTENTS (QUANTITY/VOLUME): Construction materials and
miscellaneous solid
(non-hazardous) waste

HAZARDOUS WASTE/CONSTITUENTS: Non-hazardous

DISPOSAL DATES: 1961-Present

OTHER COMMENTS: Surface water monitoring is planned after closure. Closure is being conducted under Closure Compliance Order.

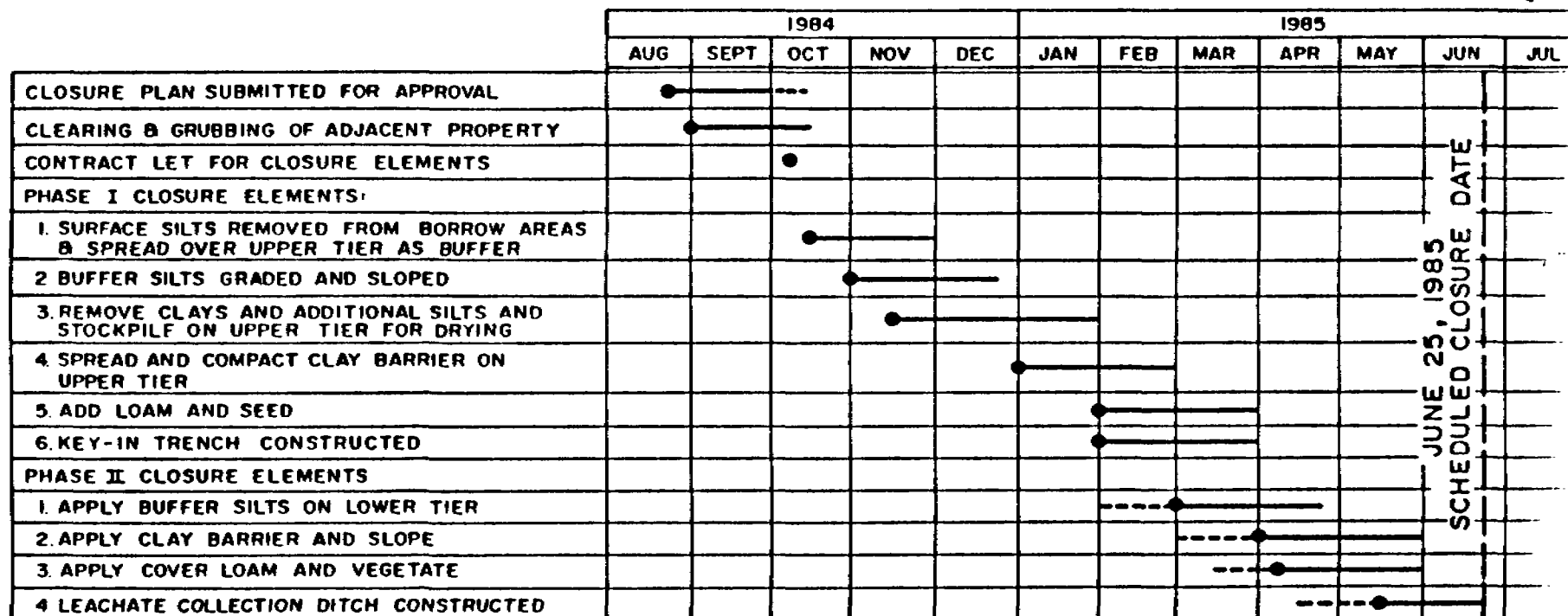


FIGURE 9
DOW CHEMICAL
LOUISIANA DIVISION

CLOSURE SCHEDULE
AUSTRALIA POINT LANDFILL

DO 144028
CONFIDENTIAL

FIGURE 9

AUSTRALIA POINT LANDFILL

6/25/84 Closure Compliance Order Issued - Closure Date 6/25/85
 Closure Date Shown in Closure Plant - June 25, 1985

1/12/84 Closure Compliance Order Requested for December 31, 1985

7/25/85 Closure Compliance Order Issued - Closure Date 12/31/85

11/6/85 Authority to Begin Construction Block 80 SWLF

11/26/85 Closure Date Extension Requested for 5/15/86

12/3/85 Closure Date Extension Requested for 8/30/86

3/31/86 Enforcement Order Received - Closure Date 8/30/86

Four Tasks Remain

1. Install buffer zone soil and final clay cap in remaining disposal zone and complete final key-in of clay cover.
2. Place final topsoil cover over remaining clay cap.
3. Install remaining vent system.
4. Install final fence and collection sump and seed final cover.

CG:sb
6/30/86

DO 144029
CONFIDENTIAL

SOLID WASTE MANAGEMENT UNIT: Tank Storage
D-15, V-201, D-13, D-92A,
D-701, T-1001, D-700

FACILITY (BLOCK#): Solvents Plant (Block 16)

USE: Storage vessels for chlorinated waste by-products from
the perchloroethylene-carbon tetrachloride manufac-
turing process prior to incineration

STATUS: In operation

MATERIALS OF CONSTRUCTION: Monel, Alloy 400 steel, SA-285,
Grade C, or Carbon Steel

DIMENSIONS:	D-13	6'x12'	D-15	12'x24'
(Diameter x Height)	D-92A	3'x7'	V-201	12'x40'
	D-700	7'x14'	D-701	8'x20'
	T-1001	12'x15'		

CAPACITY: 833,231 lbs of organic waste material

CONTENTS (QUANTITY/VOLUME): Heavy ends from the distilla-
Chlorine Process & Solvents tion of ethylene dichloride,
vinyl chloride, carbon tetra-
chloride, perchloroethylene and
trichloropropene (K019, K020)

HAZARDOUS WASTE/CONSTITUENTS: Hazardous Waste

OTHER COMMENTS: By placing heavy emphasis on the prevention
and early detection of leaks through pre-
ventive maintenance type programs, a
daily inspection program, and logging of
tank levels every two hours, the release of
hazardous liquid waste material from the
containment area is prevented.

SOLVENTS PLANT

Unit: Shot Pond

Use: Facility drainage from diked storage area. Drainage from these areas is contained by curbing. The ground is sloped toward collection sump. All drainage is inspected prior to removal.

Status: Operational, no closure planned.

Materials of Construction: Concrete

Dimensions: 40 x 10 (L x W x D)

Capacity: 12,000 gallons

Contents: Rainwater

Disposal Dates: 1982(?) - Date

CG:sb
6/27/86

DO 144031
CONFIDENTIAL

SOLID WASTE MANAGEMENT UNIT: Surface Impoundment

FACILITY (BLOCK#): Light Hydrocarbons III (Block 58)

USE: Collection of rainwater runoff

STATUS: Impoundment will be closed in January, 1986

MATERIALS OF CONSTRUCTION: Earthen bottom with chlorinated
polyethylene lined sides

DIMENSIONS: 264' x 112' x 7'
(LxWxD)

CAPACITY: 1.2 MM Gallons

CONTENTS (QUANTITY/VOLUME): Rainwater runoff

HAZARDOUS WASTE/CONSTITUENTS: Non-Hazardous

DISPOSAL DATES: 1979 - 1986

OTHER COMMENTS: The impoundment contains rainwater runoff
from the process area.

LIGHT HYDROCARBON III

SURFACE IMPOUNDMENT

Purposes of Closure:

1. Environmental upgrade.
2. Further purification of block wastewater prior to division canal discharge.

Closure Procedures:

1. Drain the impoundment and allow it to dry out (approximately 3 to 4 weeks).
2. Inspect for contamination.
3. Remove any contaminated soil.
4. Contaminated soil will be incinerated at Environmental Operations rotary kiln.
5. Site is leveled and backfilled with clay.

Closure Completed - May 23, 1986

Note: Rainwater impoundment was replaced with above ground storage tanks.

CG:sb
6/30/86

SOLID WASTE MANAGEMENT UNIT: Surface Impoundment (31)

FACILITY (BLOCK#): Light Hydrocarbon I/II (Block 39)

USE: Secondary settling pond to remove suspended solids from waste stream prior to discharge. (Outfall No. 007, Permit No. 0003301)

STATUS: Closure planned for 12/85 as indicated in closure plan submitted in response to Closure Compliance Order, No. C-0620

MATERIALS OF CONSTRUCTION: Chlorinated polyethylene lined levee with earthen bottom (clay-permeability 1×10^{-7} cm/sec.)

DIMENSIONS: 91' x 128' x 7' Deep (LxWxD)

CAPACITY: 609,889 Gallons

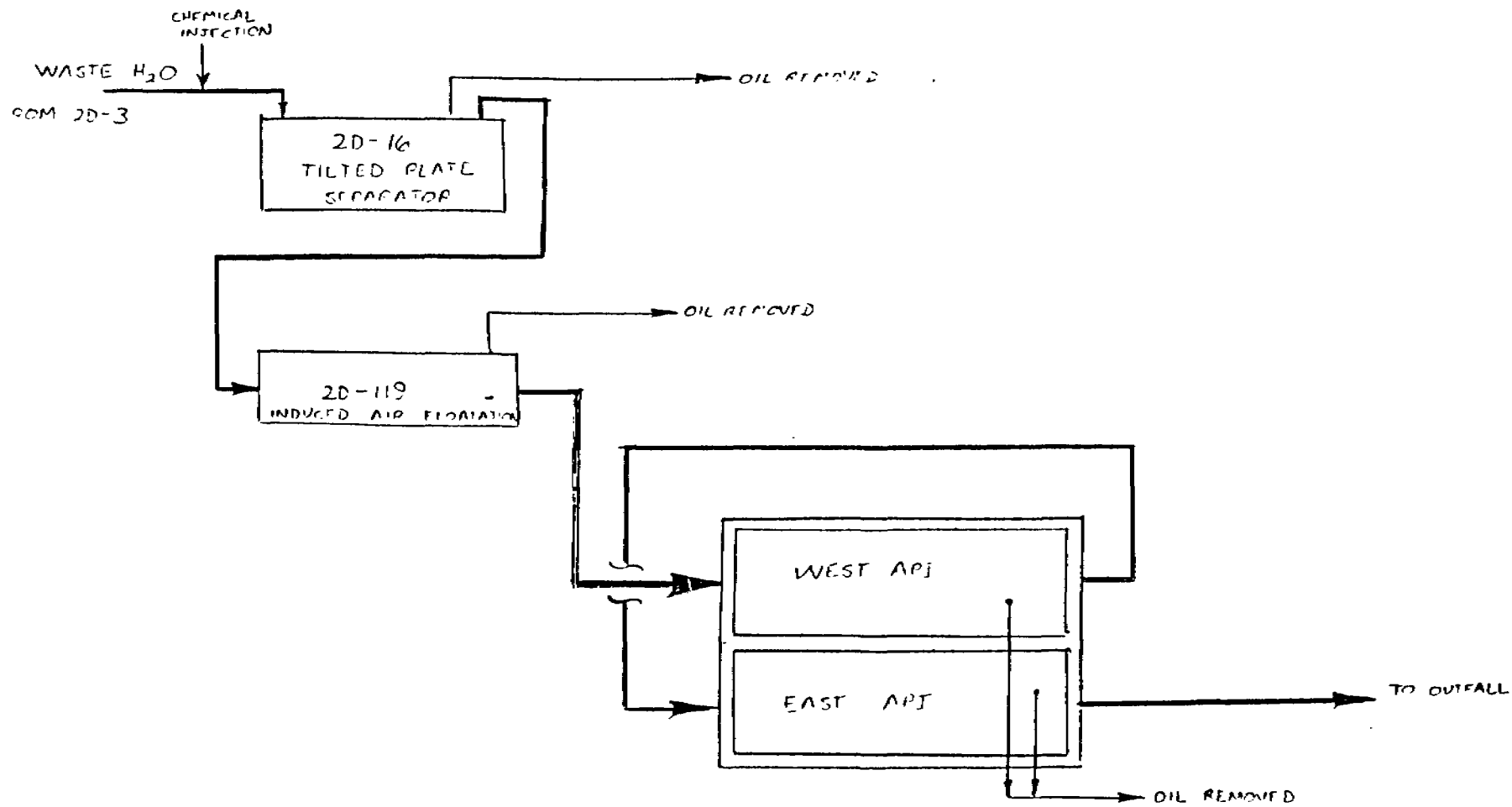
CONTENTS (QUANTITY/VOLUME): Water with trace amounts of suspended solids and hydrocarbons such as oil, grease, and benzene.

HAZARDOUS WASTE/CONSTITUENTS: Water with trace amounts of hazardous constituent such as benzene.

DISPOSAL DATES: 1977 - 12/85
Closure scheduled for 12/85



AS PREPARED BY THE
AS PREPARED BY THE
AS PREPARED BY THE



BACK UP SYSTEM FOR OIL AND GREASE REMOVAL

DO 144035
CONFIDENTIAL

SOLID WASTE MANAGEMENT UNIT: Surface Impoundment (50)

FACILITY (BLOCK#): Cell Service (Block 56)

USE: Storage of water use for recycling.

STATUS: Closed under Closure Compliance Order No. C-0599

MATERIALS OF CONSTRUCTION: A single chlorinated poly-
ethylene liner

DIMENSIONS: 110' x 110' x 6'
(LxWxD)

CAPACITY: 543,120 Gallons

CONTENTS (QUANTITY/VOLUME): Water and asbestos (152,000
gallons/week)

HAZARDOUS WASTE/CONSTITUENTS: Non-hazardous

DISPOSAL DATES: 1977 - 1985

OTHER COMMENTS: This impoundment was closed in July of 1985.

CLOSURE PROCEDURE
CELL SERVICE PLANT SURFACE IMPOUNDMENT

Task

Pump impoundment water to Wastewater
Treatment Plant

Remove asbestos sludge and CPE liner
from impoundment and place on concrete
for dewatering

Asbestos sludge/CPE liner allowed to
drain off free water

Take soil samples from impoundment for
analysis

Excavate soil, leachate piping and
sump from impoundment

Soil, leachate piping, and sump
material to solid waste landfill

Fill former impoundment with silty
clay, compact, level to grade, and
seed with grass

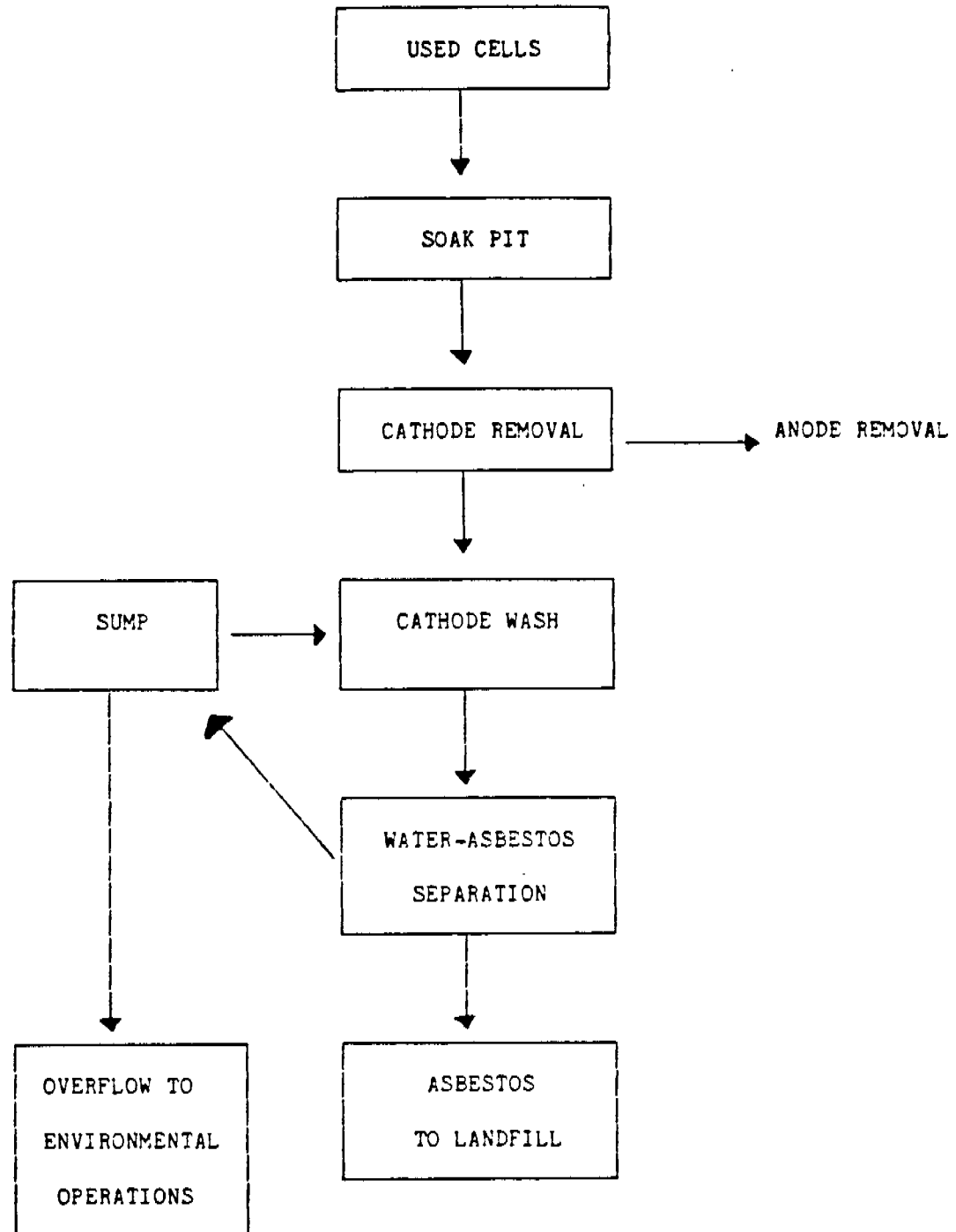
Certification of closure

DEQ notified of completed closure

CG:sb
6/27/86

DO 144037
CONFIDENTIAL

ASBESTOS WASH AREA



CG:sb
6/27/86

DO 144038
CONFIDENTIAL

SOLID WASTE MANAGEMENT UNIT: Surface Impoundment (a)

FACILITY (BLOCK#): Polyethylene B (Block 9)

USE: Two adjacent impoundments (primary and secondary) are used for polymer settling prior to NPDES water discharge.

STATUS: Closure schedule for January, 1986.

MATERIALS OF CONSTRUCTION: Earthen

DIMENSIONS: Impoundment 1 - 71' x 32' x 10'
(LxWxD) Impoundment 2 - 44' x 74' x 10'

CAPACITY: 169,968 Gallons (Impoundment 1)
243,581 Gallons (Impoundment 2)

CONTENTS (QUANTITY/VOLUME): Primarily water, with trace amounts of polyethylene powder, and catalyst residue (titanium and magnesium oxides)

HAZARDOUS WASTE/CONSTITUENTS: Non-hazardous

DISPOSAL DATES: August, 1962 - 1986

OTHER COMMENTS: These surface impoundments contain only non-hazardous wastes.

POLYETHYLENE B
SURFACE IMPOUNDMENT CLOSURE

Closure Completed: November, 1985

No soil or sludge was removed from the impoundment bottom.

Soil samples were collected of which the analysis showed no effects from surface impoundment.

CG:st
6/30/86

DO 144040
CONFIDENTIAL

SOLID WASTE MANAGEMENT UNIT: Surface Impoundment (s)

FACILITY (BLOCK#): Cellulose (Block 45)

USE: Primary and secondary holding ponds

STATUS: Both impoundments were closed under Closure
Compliance Order No. C-0576

MATERIALS OF CONSTRUCTION: Earthen (Both)

DIMENSIONS: Impoundment 1 - 74' x 90' x 4'
(LxWxD) Impoundment 2 - 105' x 150' x 8'

CAPACITY: 201,987 Gallons (Impoundment 1)
942,606 Gallons (Impoundment 2)

CONTENTS (QUANTITY/VOLUME): Brine water containing
Methocel®

HAZARDOUS WASTE/CONSTITUENTS: Non-hazardous

DISPOSAL DATES: 1976 - 1985

OTHER COMMENTS: These surface impoundments contained only
non-hazardous wastes. All wastes were
removed and incinerated.

* TRADEMARK OF THE DOW CHEMICAL COMPANY

CLOSURE SCHEDULE

BLOCK 45 - SURFACE IMPOUNDMENTS 26 & 27

CELLULOSE PLANT

1,500 Yd³ process solid waste material placed in 30 gallon packs.
This material was disposed of via incineration.

Resulting ash disposed of at Northwest Landfill.

Contaminated soil down to six inches beneath the bottom and sides of
the impoundment was excavated and landfilled at Australia Point
Landfill.

Composition of contaminated soil 2 - 5% methylcellulose products.

Impoundment backfilled with levee material and silty clay.

June 27, 1985 DEQ notified of closure.

CG:sb
6/27/86

M A T E R I A L S A F E T Y D A T A S H E E T PAGE: 1
DOW CHEMICAL U.S.A. MIDLAND MICHIGAN 48640 EMERGENCY PHONE: 517-636-4400

EFFECTIVE DATE: 02 FEB 83

PRODUCT CODE: 53971

PRODUCT NAME: METHOCEL (R) J75MS HYDROXYPROPYL
METHYLCELLULOSE

MSD: 0058

INGREDIENTS (TYPICAL VALUES-NOT SPECIFICATIONS)	:	%	:
METHOXYL	:	16.5-	:
	:	20	:
HYDROXYLPROPOXYL	:	23-32	:

SECTION 1

PHYSICAL DATA

BOILING POINT: NOT APPLICABLE : SOL. IN WATER: SEE SECT. 8
VAP PRESS: NOT APPLICABLE : SP. GRAVITY: NOT APPLICABLE
VAP DENSITY (AIR=1): NOT APPLIC. : % VOLATILE BY VOL: NOT APPLICABLE

APPEARANCE AND ODOR: WHITE TO SLIGHTLY OFF-WHITE FREE FLOWING POWDER.

SECTION 2

FIRE AND EXPLOSION HAZARD DATA

FLASH POINT: N/A : FLAMMABLE LIMITS
METHOD USED: ---- : LFL: NOT DETER. UFL: NOT DETER.

EXTINGUISHING MEDIA: WATER FOG.

SPECIAL FIRE FIGHTING EQUIPMENT AND HAZARDS: MINIMUM EXPLOSIVE DUST
CONCENTRATION IS 0.03 OZ/CU FT. SIMILAR TO FLOUR OR GRAIN DUSTS: KEEP
CLOUDS OF SUCH DUST AWAY FROM POSSIBLE IGNITION SOURCES.

SECTION 3

REACTIVITY DATA

STABILITY: AVOID DUST CLOUDS OR LAYERS.

INCOMPATIBILITY: OXIDIZING MATERIAL.

HAZARDOUS DECOMPOSITION PRODUCTS: ----

HAZARDOUS POLYMERIZATION: WILL NOT OCCUR.

SECTION 4

SPILL, LEAK, AND DISPOSAL PROCEDURES

DO 144043
CONFIDENTIAL

TIDN TO TAKE FOR SPILLS: SWEEP UP - USE IF POSSIBLE, OR DISCARD.

DISPOSAL METHOD: PREFERABLE METHOD WOULD BE TO BURY. CAN BE BURNED
UNDER CAREFULLY CONTROLLED CONDITIONS TO ELIMINATE DUST EXPLOSIONS.

(CONTINUED ON PAGE 2)

SAFETY DATA SHEET
DOW CHEMICAL U.S.A. MIDLAND MICHIGAN 48640 EMERGENCY PHONE: 517-636-4400

EFFECTIVE DATE: 02 FEB 63

PRODUCT CODE: 53971

PRODUCT (CONT'D): METHOCEL (R) J75MS HYDROXYPROPYL
METHYLCELLULOSE

MSD: 0058

SECTION 5

HEALTH HAZARD DATA

EYE: MECHANICAL INJURY ONLY.

SKIN CONTACT: MECHANICAL INJURY ONLY.

SKIN ABSORPTION: NOT ABSORBED - LOW IN HAZARD.

INGESTION: VERY LOW ACUTE AND CHRONIC ORAL TOXICITY; LD50 = >10 G/KG RATS.

INHALATION: DOW INDUSTRIAL HYGIENE GUIDE IS 10 MG/M3 FOR NUISANCE DUST EFFECT.

SYSTEMIC & OTHER EFFECTS: NONE KNOWN.

SECTION 6

FIRST AID

EYES: IRRIGATION OF THE EYE IMMEDIATELY WITH WATER FOR FIVE MINUTES IS GOOD SAFETY PRACTICE.

SKIN: WASH OFF IN FLOWING WATER.

INGESTION: NO EFFECT EXPECTED.

INHALATION: REMOVE TO FRESH AIR IF EFFECTS OCCUR.

NOTE TO PHYSICIAN:

EYES: MECHANICAL INJURY ONLY.

SKIN: MECHANICAL INJURY ONLY.

RESPIRATORY: NUISANCE DUST.

ORAL: VERY LOW IN TOXICITY.

SYSTEMIC: INJURY IS UNLIKELY.

SECTION 7

SPECIAL HANDLING INFORMATION

VENTILATION: RECOMMEND CONTROL OF DUST TO SUGGESTED GUIDE.

RESPIRATORY PROTECTION: NONE NORMALLY NEEDED. IF REQUIRED, USE AN APPROVED DUST RESPIRATOR.

PROTECTIVE CLOTHING: NONE REQUIRED.

EYE PROTECTION: NOT NORMALLY NECESSARY. SAFETY GLASSES WITHOUT SIDE SHIELDS.

SECTION 8

SPECIAL PRECAUTIONS AND ADDITIONAL INFORMATION

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: USE REASONABLE CAUTION AND PERSONAL CLEANLINESS. CELLULOSE ETHERS ARE WATER-SOLUBLE POLYMERS WHICH FORM AQUEOUS DISPERSIONS BY SWELLING AND BY SUCCESSFUL HYDRATION OF THEIR STRUCTURAL LAYERS. THERE IS NO SHARP SOLUBILITY LIMIT. CAUTION: UNDER CERTAIN CONDITIONS A FINE DUST OF THIS MATERIAL IN AIR MAY CAUSE A DUST EXPLOSION WHEN EXPOSED TO HEAT, SPARKS, AND

DO 144044
CONFIDENTIAL

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100
DOW CHEMICAL U.S.A. MIDLAND MICHIGAN 48641 EMERGENCY PHONE: 517-636-4400

EFFECTIVE DATE: 02 FEB 83

PRODUCT CODE: 53971

PRODUCT (CONT'D): METHOCEL (R) J75MS HYDROXYPROPYL
METHYLCELLULOSE

MSD: 0058

SECTION 8 SPECIAL PRECAUTIONS AND ADDITIONAL INFORMATION (CONTINUED)

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: (CONTINUED)
OPEN FLAME.

ADDITIONAL INFORMATION: 02 FEB 83 REVISIONS: SECTIONS 2 AND 8.

LAST PAGE

(R) INDICATES A TRADEMARK OF THE DOW CHEMICAL COMPANY
THE INFORMATION HEREIN IS GIVEN IN GOOD FAITH, BUT NO WARRANTY,
EXPRESSED OR IMPLIED, IS MADE. CONSULT THE DOW CHEMICAL COMPANY
FOR FURTHER INFORMATION.

SOLID WASTE MANAGEMENT UNIT: Surface Impoundment (37)

FACILITY (BLOCK#): Coal Slurry Production Plant (Block 70)

USE: Settling pond for rainwater runoff from coal pile.

STATUS: Closure is scheduled for August 1985, awaiting a Closure Compliance Order from the Department of Environmental Quality. This facility is presently operating under Interim Permit No. IP-0175-A.

MATERIALS OF CONSTRUCTION: Earthen (3' levee)

DIMENSIONS: 100' x 40' x 4' Deep
(LxWxD)

CAPACITY: 213,000 Gallons

CONTENTS (QUANTITY/VOLUME): Rainwater runoff from coal
storage pile

HAZARDOUS WASTE/CONSTITUENTS: Coal particles are not
hazardous

DISPOSAL DATES: 1981 - 8/85 (Estimated)

OTHER COMMENTS: This surface impoundment only contains non-
hazardous materials.

CLOSURE PROCEDURE
COAL SLURRY PLANT SURFACE IMPOUNDMENT

Task

Pump impoundment water to Wastewater
Treatment Plant's outfall

Sludge dewatering

Sludge removal and landfill

Pipe installation and concrete work

Fill impoundment with silty clay,
compact and level to grade

Install new sump cover and backfill

Certification of closure

DEQ notified of completed closure

CG:sb
6/27/86

DO 144047
CONFIDENTIAL

VINYL II PLANT

Unit: Rainwater Pond

Use: Pond #1 - Rainwater Pond (Emergency Containment for Vinyl Spills)

Pond #2 - Rainwater Collection (Pit 430)

Status: Operational; No Closure Planned

Materials of Construction: Concrete

Capacity Pond #1:

Pond #2: Approximately 1MM Gallons (Pit 430)

Contents: Rainwater

Disposal Dates: 1977 - Present

CG:sb
6/86

DO 144048
CONFIDENTIAL

TEMPORARY STORAGE FACILITIES

POLYETHYLENE C

AS&TL

CA II

CHLORINE

CAUSTIC

CPE

ENVIRONMENTAL OPERATIONS

GLYCOL I

GLYCOL II

LHC II

LHC III

LUBRICATION

METHANES

POLY A

POLY B

SOLVENTS

VINYL II

EDC I

MAINTENANCE TECH (FAE SHOP)

CG:sb
6/30/86

DO 144049
CONFIDENTIAL

NWLF Groundwater Monitor Summary

1981 installed 5 groundwater monitor wells.

Part II response - need more wells.

1985 installed 3 more wells.

CPE Groundwater Monitor Summary

1981 installed site-specific wells.

Part II response question direction of groundwater and need for shallower wells.

1985 Annual report proposed installing 3 shallow wells.

Chlorine

Installed perimeter groundwater system around Division to monitor groundwater.

1984 state requires site-specific wells. These wells installed in 1985.

CA II

Installed perimeter groundwater system around Division to monitor groundwater.

1984 state requires site-specific wells. These wells installed in 1985.

Overall Philosophy of Groundwater Monitoring

NWLF - 1981 wells installed

CPE - Wells installed 1981

Perimeter wells installed 1982

Administration Order 1984 - Chlorine wells 1985
CA II wells 1984 - 1985

CG:sb
6/86

DO 144050
CONFIDENTIAL

EPA I.D. Number _____

USE SEPARATE SHEET FOR EACH UNIT

HAZARDOUS WASTE LAND DISPOSAL UNIT DESCRIPTION

Unit No. _____ of _____

1. Facilities Name of Unit: _____
2. Purpose/Mode of Operation: _____

3. Process Code: _____
4. Design Capacity: _____
(Cite Verification) _____
Volume _____
Rate _____
Depth of unit _____
Depth to ground water _____
5. Date of Existence: _____
(Cite Verification) _____

6. Dates of Last Hazardous and/or Nonhazardous Waste Addition: _____
(Cite Verification) _____

7. Closure Plan Submittal Date: _____
8. Hazardous Waste Code(s) Handled: _____
(Cite Verification) Describe: _____

EPA I.D. Number _____

Unit No. _____ of _____

9. Non-hazardous Waste Handled: _____

10. Provide Narrative of History of Operation Since 11-19-80; Cite References:

11. Field Observations: _____

EPA I.D. Number _____

USE SEPARATE SHEET FOR EACH UNIT

HAZARDOUS WASTE LAND DISPOSAL UNIT DESCRIPTION

Unit No. _____ of _____

1. Facilities Name of Unit: _____
2. Purpose/Mode of Operation: _____

3. Process Code: _____
4. Design Capacity: _____
(Cite Verification) _____
Volume _____
Rate _____
Depth of unit _____
Depth to ground water _____
5. Date of Existence: _____
(Cite Verification) _____

6. Dates of Last Hazardous and/or Nonhazardous Waste Addition: _____
(Cite Verification) _____

7. Closure Plan Submittal Date: _____
8. Hazardous Waste Code(s) Handled: _____
(Cite Verification) Describe: _____

EPA I.D. Number _____

Unit No. _____ of _____

9. Non-hazardous Waste Handled: _____

10. Provide Narrative of History of Operation Since 11-19-80; Cite References:

11. Field Observations: _____

EPA I.D. Number _____

USE SEPARATE SHEET FOR EACH UNIT

HAZARDOUS WASTE LAND DISPOSAL UNIT DESCRIPTION

Unit No. _____ of _____

1. Facilities Name of Unit: _____
2. Purpose/Mode of Operation: _____

3. Process Code: _____
4. Design Capacity: _____
(Cite Verification) _____
Volume _____
Rate _____
Depth of unit _____
Depth to ground water _____
5. Date of Existence: _____
(Cite Verification) _____

6. Dates of Last Hazardous and/or Nonhazardous Waste Addition: _____
(Cite Verification) _____

7. Closure Plan Submittal Date: _____
8. Hazardous Waste Code(s) Handled: _____
(Cite Verification) Describe: _____

EPA I.D. Number _____

Unit No. _____ of _____

9. Non-hazardous Waste Handled: _____

10. Provide Narrative of History of Operation Since 11-19-80; Cite References:

11. Field Observations: _____

EPA I.D. Number _____

USE SEPARATE SHEET FOR EACH UNIT

HAZARDOUS WASTE LAND DISPOSAL UNIT DESCRIPTION

Unit No. _____ of _____

1. Facilities Name of Unit: _____
2. Purpose/Mode of Operation: _____

3. Process Code: _____
4. Design Capacity: _____
(Cite Verification) _____
Volume _____
Rate _____
Depth of unit _____
Depth to ground water _____
5. Date of Existence: _____
(Cite Verification) _____

6. Dates of Last Hazardous and/or Nonhazardous Waste Addition: _____
(Cite Verification) _____

7. Closure Plan Submittal Date: _____
8. Hazardous Waste Code(s) Handled: _____
(Cite Verification) Describe: _____

EPA I.D. Number _____

Unit No. _____ of _____

9. Non-hazardous Waste Handled: _____

10. Provide Narrative of History of Operation Since 11-19-80; Cite References:

11. Field Observations: _____

EPA I.D. Number _____

USE SEPARATE SHEET FOR EACH UNIT

SWMU DESCRIPTION

Unit No. _____ of _____

1. Name of Unit: _____
2. Purpose/Associated Processes: _____

3. Type/Amount of Waste Received: _____

4. Field Observation: _____

EPA I.D. Number _____

USE SEPARATE SHEET FOR EACH UNIT

SWMU DESCRIPTION

Unit No. ____ of ____

1. Name of Unit: _____

2. Purpose/Associated Processes: _____

3. Type/Amount of Waste Received: _____

4. Field Observation: _____

EPA I.D. Number _____

USE SEPARATE SHEET FOR EACH UNIT

SWMU DESCRIPTION

Unit No. _____ of _____

1. Name of Unit: _____

2. Purpose/Associated Processes: _____

3. Type/Amount of Waste Received: _____

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EPA I.D. Number _____

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EPA I.D. Number _____

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3. Type/Amount of Waste Received: _____

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EPA I.D. Number _____

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1. Name of Unit: _____
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3. Type/Amount of Waste Received: _____

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EPA I.D. Number _____

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EPA I.D. Number _____

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3. Type/Amount of Waste Received: _____

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EPA I.D. Number _____

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3. Type/Amount of Waste Received: _____

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EPA I.D. Number _____

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3. Type/Amount of Waste Received: _____

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EPA I.D. Number _____

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3. Type/Amount of Waste Received: _____

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3. Type/Amount of Waste Received: _____

4. Field Observation: _____

EPA I.D. Number _____

USE SEPARATE SHEET FOR EACH UNIT

SWMU DESCRIPTION

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1. Name of Unit: _____

2. Purpose/Associated Processes: _____

3. Type/Amount of Waste Received: _____

4. Field Observation: _____

EPA I.D. Number _____

USE SEPARATE SHEET FOR EACH UNIT

SWMU DESCRIPTION

Unit No. ____ of ____

1. Name of Unit: _____
2. Purpose/Associated Processes: _____

3. Type/Amount of Waste Received: _____

4. Field Observation: _____

EPA I.D. Number _____

USE SEPARATE SHEET FOR EACH UNIT

SWMU DESCRIPTION

Unit No. ____ of ____

1. Name of Unit: _____

2. Purpose/Associated Processes: _____

3. Type/Amount of Waste Received: _____

4. Field Observation: _____

EPA I.D. Number _____

USE SEPARATE SHEET FOR EACH UNIT

SWMU DESCRIPTION

Unit No. _____ of _____

1. Name of Unit: _____
2. Purpose/Associated Processes: _____

3. Type/Amount of Waste Received: _____

4. Field Observation: _____

EPA I.D. Number _____

USE SEPARATE SHEET FOR EACH UNIT

SWMU DESCRIPTION

Unit No. ____ of ____

1. Name of Unit: _____
2. Purpose/Associated Processes: _____

3. Type/Amount of Waste Received: _____

4. Field Observation: _____

DO 144080
CONFIDENTIAL

EPA I.D. Number _____

USE SEPARATE SHEET FOR EACH UNIT

SWMU DESCRIPTION

Unit No. ____ of ____

1. Name of Unit: _____
2. Purpose/Associated Processes: _____

3. Type/Amount of Waste Received: _____

4. Field Observation: _____

EPA I.D. Number _____

USE SEPARATE SHEET FOR EACH UNIT

SWMU DESCRIPTION

Unit No. ____ of ____

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2. Purpose/Associated Processes: _____

3. Type/Amount of Waste Received: _____

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EPA I.D. Number _____

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