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FORM AD-16

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TO: → Ed ~~Explain~~ - SW/3
GEF 2

FROM: Pam Mylotta
SEA

SUBJECT—MESSAGE

Freeman Closure

Ed -

I received a revised closure plan from Freeman after meeting with them 8/29/89 to discuss our comments on the original. Basicly, they changed the tank decon procedures to boiling water / steam clean and pre-clean xylene flush.

REPLY

SIGNED Pam Mylotta DATE 9/7/89

Freeman
A SUBSIDIARY OF GEORGIA GULF CORP.
Specialty Products and Services Today for Tomorrow's Needs

Freeman Chemical Corporation
217 Freeman Drive
P. O. Box 996
Port Washington, WI 53074-0996
(414) 284-5541 -:- Telex: 2-6737

September 5, 1989

Ms. Pam Mylotta
Hazardous Waste Specialist
WDNR - Southeast District
P.O. Box 12436
2300 N. Dr. Martin Luther King Dr.
Milwaukee, WI 53212

RE: FREEMAN CHEMICAL-SAUKVILLE, WI CLOSURE PLAN

Dear Pam:

Please find enclosed a copy of Freeman Chemical Corporation's revised closure plan, addressing various concerns that you expressed during your site visit on August 29, 1989. Basically, the context of the closure plan remains the same, although the section pertaining to the closure of the reaction water tank and spent solvent storage tankwagon has been rewritten. Also, the estimated closure costs have been revised to reflect any associated changes due to the updating of the aforementioned closure section.

It is Freeman's understanding that the WDNR will be issuing the closure plan approval as early as next week, upon your receipt and review of this plan, as well as contingent upon submittal of a soil sampling plan by November 8, 1989. It is anticipated that the WDNR closure plan approval will delineate any outstanding issues regarding closure activity as well as the soil sampling protocol and subsequent expectancies.

Freeman intends to meet the timetable discussed on August 29, 1989. The incinerator ash analysis will be available later this week. An outside consultant, preferably Hatcher/Sayre Inc., will develop the soil sampling plan. Other closure activity, as characterized in the closure plan, will be performed upon receipt of the closure plan approval and of successful formal trial burn results. Accordingly, it is expected that the bulk of closure activity will be completed during the month of October.

If you have any questions or require additional information, please contact me.

Sincerely,
FREEMAN CHEMICAL CORPORATION

Craig R. Bostwick
Waste Management Specialist

Enclosure

FREEMAN CHEMICAL CORPORATION
INTERIM-LICENSED HAZARDOUS WASTE INCINERATION AND STORAGE FACILITY

SAUKVILLE, WI

CLOSURE PLAN

NR 181.42 CLOSURE PLAN

This closure plan is submitted in accordance with the requirements of NR 181.42 (8). This plan identifies all steps that will be necessary to close the Freeman Chemical Corporation (hereafter "Freeman") existing interim-licensed liquid incinerator unit (NR 181.45 (5)) and hazardous waste storage areas (NR 181.43 (10)). The hazardous waste storage areas will include the reaction water storage tank, waste solvent storage tankwagon, incinerator ash container, and hazardous waste drum storage area. The plan also will address steps necessary to convert the existing solid waste incinerator ("Bag" incinerator) into a strictly non-hazardous waste incineration unit. A long-term care plan is not required for incinerators or tanks. This is not a disposal facility and no hazardous wastes or residues will remain at closure.

Copies of the approved closure plan and all revisions to the plan will be maintained on-site until the certification of closure completeness has been submitted to and accepted by the Wisconsin Department of Natural Resources (hereafter identified as "Department"). Freeman will notify the Department at least 180 days prior to the date expected to begin final closure. Upon completion of closure, Freeman will submit to the Department a certification by an independent registered professional engineer that the Freeman interim-licensed incinerator operations and nearby hazardous waste storage area have been closed in accordance with the specifications in the approved closure plan.

NR 181.42 (8)(a) CLOSURE PERFORMANCE STANDARD

This closure plan is designed to conform to the closure performance standard, namely the removal of all hazardous wastes from the existing interim-licensed incinerators and hazardous waste storage areas of the current waste treatment and storage facility. Specifically, the plan insures that the facility units will be closed as hazardous waste units so that the following conditions will be met:

NR 181.42 (8)(a)1.

The existing liquid incinerator and hazardous waste storage area(s) will require no further maintenance.

NR 181.42 (8)(a)2.

The existing liquid incinerator unit and hazardous waste storage area(s) will be closed so as to minimize threats to human health and the environment, and to eliminate post-closure escape of hazardous waste, hazardous waste constituents, hazardous leachate, contaminated runoff, or waste decompostion products to the ground water, surface waters, and/or the atmosphere.

NR 181.42 (8)(a)3.

Freeman is not required to meet the additional requirements for unlicensed landfills or surface impoundments as specified in NR 181.44 (12). This does not apply.

NR 181.42 (8)(a)4.

Freeman is not required to meet the additional closure requirements for licensed landfills or surface impoundments as specified in NR 181.44 (13). This does not apply.

NR 181.42 (8)(a)5.

The existing incinerator and hazardous waste storage area will be closed so as to comply with the requirements of this subchapter, including, but not limited to NR 181.43 (10) and NR 181.45 (5).

The following discussion describes in detail efforts to be made by Freeman Chemical to satisfy the closure performance standard.

NR 181.42 (8)(b) CLOSURE ACTIVITIES

Freeman will maintain a written closure plan demonstrating compliance with this paragraph and it will be kept at the facility until closure is completed and certified in accordance with par. h.

NR 181.42 (8)(b) 1. Closure of storage tanks, incinerators, containers

Each existing hazardous waste management unit at will be closed in accordance with the closure performance standard. Upon receipt of the operating license for Freeman's new liquid hazardous waste incinerator-small storage facility, closure will commence. During closure each existing incinerator will be operated at the conditions specified in its operating permit.

Reaction Water Storage Tank & Spent Solvent Storage Tankwagon
The reaction water line and tank will be rinsed with three individual 300 to 500 gallon volumes of boiling water. Before and between each rinsing, the line will be purged with steam

and/or nitrogen. The third rinse will be tested for hydrocarbon content by gas chromatograph (GC). The rinse in the line will be considered clean when the presence of xylene or other similar aromatic compounds is less than 5 parts per million (< 5 ppm). Should the value exceed this stated parameter another flush will ensue, purged with steam and/or nitrogen, and tested.

Prior to the water flushes to the tank, the tank will be rinsed using a prime xylene/dibasic ester (DBE) mixture in 50 to 100 gallon increments. This flush will be conducted two additional times to ensure removal of any resinous type of material from the tank. The rinse will be circulated by appropriate devices from all interior areas of the tank. This mixture also will be used to perform the preliminary rinse of the solvent tankwagon. The solvent mixture will then be removed and incinerated via the new liquid hazardous waste incinerator.

The tank will be opened and examined prior to the water rinse. After the water rinse, the tank will be steam cleaned using a portable pressure washer. The reaction water tank will be cleaned to the point of salvage, but will be abandoned in place at this time. In addition, the 1/2" pipe from the reaction water tank to the burning unit will be decontaminated, removed, and used for future plumbing projects at the Freeman site.

After the solvent rinse of the solvent tankwagon, the tanker will be cleaned to a condition similar to other over-the-road equipment and then put into service as Freeman determines.

Reaction Water Incinerator Closure

Prime diesel fuel will be burned for 24 hours at a temperature of 1450 degrees Fahrenheit to decontaminate the refractory. Prime diesel fuel also will be burned simultaneously in the "Bag" incinerator for at least 12 of the 24 hours in order to decontaminate.

Once the liquids incinerator has been decontaminated, disassembly will be initiated. Salvageable control components and instrumentation will be removed from the reaction water incinerator and stored on the Saukville site for reuse. The rest will be scrapped. The steel shell and top cap of the acid water incinerator will be cut up into manageable pieces and sold to a scrap iron dealer. The refractory will be wrecked out and placed in the incinerator ash lugger for disposal at a licensed landfill. The incinerator will be completely disposed of down to grade level.

When disassembly is initiated, following decontamination of the liquids incinerator, necessary equipment will be repiped to the "Bag" incinerator. The 250 gallon prime xylene startup

tank will be cleaned and removed on-site. Furthermore, any above-ground plumbing and the above-ground reaction water line will be removed. The underground reaction water line will be capped.

"Bag" Incinerator Closure & Conversion

All hazardous ash will be removed from the "Bag" incinerator and shoveled into the hazardous ash lugger to await off-site disposal at a properly licensed facility. The incinerator interior will be vacuum cleaned and any collected residuals will also be placed in the hazardous ash lugger for proper off-site disposal at a properly licensed facility.

Non-hazardous materials (wood, paper, etc.) will be burned for 12 hours using prime diesel fuel. This ash will be removed and analyzed to substantiate its non-hazardous classification. (Note: Freeman maintains a waste profile on the incinerator ash, which undergoes quarterly TCLP analysis. Data indicates that the ash would be considered non-hazardous. Presently, it is considered hazardous only by virtue of its being a "derived" waste from a hazardous waste incinerator.)

The steps of burning non-hazardous materials with prime diesel fuel and of analyzing the ash will be repeated as necessary. All fuels and materials burned in the incinerator, thereafter, will be non-hazardous.

Hazardous Ash Lugger

All ash resulting from decontamination procedures and the closure of the incinerator(s) will be placed in the hazardous ash lugger, properly manifested, and transported by a licensed hazardous waste hauler (presently E & K Hazardous Waste Services) to a properly licensed facility for disposal (currently Chemical Waste Management-CID located in Calumet City, IL).

Drum Storage Area

Containers are used at the Saukville Plant only for temporary storage (less than 90 days) prior to on-site incineration or off-site shipment for incineration or final disposal in approved facilities. Any drums of hazardous waste which result from closure will be stored in Building 45 and handled in the same manner.

NR 181.42 (8)(b)2. Maximum Extent of Operations Unclosed

No extent of the existing hazardous waste incinerator/storage operations will be left unclosed at the time of closure. Therefore, this subchapter description requires no further response.

NR 181.42 (8)(b)3. Maximum Waste Inventory

The inventory of wastes stored at the Freeman Chemical hazardous waste incinerator and hazardous waste storage area was limited by interim license to a maximum of:

Spent solvent (F003)	- one 7,200 gallon tankwagon
Reaction Water (D001)	- one 12,000 gallon tank
Incinerator Ash (F003)	- one 40 cubic yard container
Miscellaneous Resins & Wastes (D001)	- 200 drums

The incinerator ash will be properly manifested, transported by a licensed waste hauler, and disposed of at a properly licensed facility. Any drums containing solid hazardous waste which have been stored less than 90 days will be shipped off-site for incineration or disposal in approved facilities, if they have not been previously incinerated in the existing interim-licensed facility.

NR 181.42 (8)(b)4. Inventory Disposal; Equipment Removal/Decontamination

Cleanup and decontamination will be performed under Plant Management with the Plant Engineer present. The procedures and clothing required for typical flammable materials handling will be utilized. Cotton coveralls, rubber gloves, safety glasses, and helmets will be worn for general work, such as disconnecting piping, connecting pumps, etc. Additionally, appropriate respirators will be supplied for dusty work, such as collecting ash samples or wrecking out refractory. In the event it becomes necessary to enter a tank for sludge removal, a carbon filter breathing apparatus, rubber boots, and rubber gloves will be worn by personnel. Cotton coveralls will be cycled through the industrial cleaning service currently used. Material will be removed from boots by spraying, washing, and scrubbing with detergent solution. Drips pans will be used to catch the rinsate, and the rinsate water will be drummed into properly marked drums for subsequent incineration in Freeman's new liquid incinerator.

Decontamination of specific equipment was discussed in sec. NR 181.42 (8)(b)1.

On October 14, 1987, Freeman Chemical signed an Administrative Order of Consent with the USEPA and WDNR, proceeding under Section 3008(h) of the Resource Conservation and Recovery Act, as amended by the Hazardous and Solid Waste Amendments of 1984, in order to remediate existing groundwater contamination and to prevent or reduce the release of any additional hazardous constituents to the ground water, surface water, and soil in and around the facility. As part of the Scope of Work, Freeman has continued to document investigations and corrective measures regarding the remediation. This

documentation includes soil and groundwater analyses, including analytical results for wells located in the existing incinerator/storage areas (i.e. W47, RC3, W37). Because the Consent Order has addressed the extent of contamination in the immediate area and because the Scope of Work requires quarterly groundwater monitoring, no additional sampling of the surrounding soils shall be required.

NR 181.42 (8)(b)5. Groundwater Monitoring

As noted in sec. NR 181.42 (8)(b)4. preceding, groundwater monitoring at the facility is conducted quarterly, and data is supplied to the regulatory agencies as required by the Administrative Order of Consent. No additional groundwater monitoring need be conducted in this area. Instead, current groundwater sampling and monitoring will be utilized, and because this data reflects soil contamination, further sampling need not be initiated.

NR 181.42 (8)(b)6. Schedule for Closure

The Department will be notified by Freeman at least 180 days prior to beginning closure. The proposed schedule for closure follows:

CLOSURE SCHEDULE FOR FREEMAN INCINERATOR/STORAGE UNITS

Scheduled Event	Days After Closure Init.
Flushing and decontamination of piping, transfer lines, and waste storage tanks	10-15
Final incineration of waste water solvent flushings and all combustible decontamination residues	15-20
Disassembly of liquid incinerator and salvage of storage tanks (i.e. removal of refractory, salvage of burner parts and instrumentation, capping underground piping)	35
Decontamination and conversion of "Bag" incinerator	45
Receipt of analytical verification of incinerator ash samples	60
Dispose of incinerator ash and/or solid hazardous wastes	60-90
Certify closure complete	180

NR 181.42 (8)(b)7. Long-term care

Freeman Chemical does not operate a landfill or surface impoundment, and therefore, does not have to provide long-term care and closure schedules as required for disposal facilities covered by NR 181.42 (9).

NR 181.42 (8)(b)8. Closure cost estimate

The latest cost estimate for conducting closure of the Freeman Chemical existing hazardous waste incinerator and hazardous waste storage area is $191,050.52 (which represents maximum cost if done off-site by third party).

The closure cost estimate will be kept at the Freeman Chemical Plant Manager's office. It will be revised whenever a change in the incineration unit affects the cost of closure. The closure cost estimate will be adjusted regularly to reflect changes in closure costs brought about by inflation. The Department of Commerce's Annual Implicit Deflator for Gross National Product will be used to make this adjustment. This "latest adjusted cost estimate", too, will be retained at the Plant Manager's office throughout the life of the incinerator and final closure.

ESTIMATED CLOSURE COSTS

ITEM	COST
1. Equipment decontamination & incineration of solvent/water rinsates	$7,617.29
2. Disposal of maximum inventory	$153,025.00
3. Disposal of process residues	$6,290.00
4. Professional certification	$750.00
5. Administrative costs	$6,000.00
6. TOTAL	$173,682.29
Contingencies (10% of 6)	$17,368.23
8. TOTAL COST	$191,050.52

All cost estimates are based on most recent quotes received by Freeman Chemical from appropriate parties (See attached letters of cost estimates).

DETAILED CALCULATIONS OF CLOSURE COSTS

EQUIPMENT DECONTAMINATION & INCINERATION OF RINSATES/RESIDUES

The volume of fuel oil required to decontaminate the refractory of the liquid incinerator is estimated to be 780 gallons.

780 gallons x .70/gal. = $546.00

The volume of hot water required to rinse lines/tanks is estimated to be 1500 gallons.

1500 gallons x .85/1,000 gal. = $1.29

The piping decontamination is expected to require an additional 16 hours of laborers' time, resulting in an estimated cost of:

16 hours x $20.00/hr. = $320.00

The analysis to complete one waste profile of the incinerator ash and one TCLP analysis of the incinerator ash is estimated to cost:

1 sample x $400.00/sample = $400.00
1 sample x $450.00/TCLP = $450.00

The mobilization, labor, equipment decontamination, sample collection, and sample analyses for quarterly groundwater sampling is estimated to cost:

1 sample period x $5,900.00/sample = $5,900.00

Total incinerator system/storage tank decontamination costs are estimated to be:

$546.00 + $1.29 +
$320.00 + $400.00 + $450.00 + $5,900.00 =
$7,617.29

DISPOSAL OF MAXIMUM INVENTORY

7,200 gallons of spent solvent would be $18,000.00

7,200 gallons x $2.50/gal. = $18,000.00

Transportation - 2 loads at $3,400/load = $6,800.00

12,000 gallons of reaction water would be $25,800.00

12,000 gallons x $2.15/gal. = $25,800.00

Transporation - 3 loads at $950.00/load = $2,825.00

40 cubic yards incinerator ash (transportation & disposal) =
$5,600,00

200 drums hazardous solid waste (including 19 drums of DEG, if necessary) = $72,000.00

200 drums x $360.00/drum = $72,000.00

Transportation - 200 drums x $110/drum = $22,000.00

It is unlikely that Freeman would have more than a few drums of hazardous waste for off-site disposal/incineration at approved facilities. The aforementioned costs assume that all hazardous waste, including liquid spent solvent waste and liquid reaction water, incinerator ash, and containerized waste (liquid or solid), would have to be sent off-site.

As proposed, however, liquid hazardous waste would have been incinerated in the existing incinerator prior to decontamination. Only the incinerator ash, and possibly a few hazardous waste drums, therefore, would have to actually be shipped off-site.

The total cost to dispose of the maximum inventory (most expensive, off-site, third-party scenario) would be $153,025.00.

DISPOSAL OF PROCESS RESIDUES

Clean-up water will be disposed of on-site at the new liquid hazardous waste incinerator. The cost of the village-supplied water would be estimated as:

4,500 gallons x .74/1,000 gals. = $3.33

Assuming cleanup water would have to be transported to an off-site designated facility (a tankwagon of 4,500 gallons), the cost would be $6,290.00, including transportation.

4,500 gallons x $1.00/gal. = $4,500.00
1 load x $1,790/load = $1,790.00

EQUIPMENT DISPOSAL

As all incinerator related equipment and storage tanks will be decontaminated during closure, no disposal will be required. It is expected that only the "Bag" incineration system will be in place, being converted for use as a non-hazardous waste incinerator. Appropriate parts will be salvaged.

PROFESSIONAL CERTIFICATION

An independent registered professional engineer will be retained to certify closure. His time requirements are expected to be 15 hours, calculated as follows:

Familiarization with closure plans	2 hours

Inspection during decontamiation	8 hours
Review of analytical results	4 hours
Preparation of certification	1 hour
Total time	15 hours

Total independent certification, at $50.00/hour, is estimated to cost:

15 hours x $50/hr. = $750.00

FACILITY SECURITY

Facility security will be maintained throughout the closure period until closure is complete by means of the Plant's fences and gates. No cost is associated with maintaining security during closure.

ADMINISTRATIVE COSTS

Approximately 80 hours of Freeman Chemical administrative time will be involved in managing and certifying closure at a rate of $30.00 per hour (including fringe benefits and overhead) resulting in costs of:

80 hours x $30.00/hr. = $2,400.00

In addition, $3,000 of cost will be incurred to retain necessary contractor assistance. Anticipated contractor fees due to closure are estimated to be:

40 hours x $37.50/hr. = $1,500.00 (Mechanical)
40 hours x $37.50/hr. = $1,500.00 (Electrical)

COST REVIEW

These closure costs have been submitted as required by NR 181.42 (8) and in accordance with sub. (10) (d) and (g). The costs are reported in current dollars and the sources of estimates are provided. At a minimum, the closure costs include any necessary labor, disposal, and/or decontamination of hazardous waste and residues on equipment and structures. Closure cost estimates equal the most expensive closure cost assumed to close the existing hazardous waste units by off-site, other-party means. These closure cost estimates do not incorporate any salvage value that may be realized with the sale of hazardous wastes or facility structures or equipment associated with the facility at time of closure.

The estimated annual rate of inflation shall be the latest percent change in the annual gross national product implicit price deflator published in the survey of current business by the bureau of economic analysis, U.S. Department of Commerce. Any adjustment of cost estimates will be made pursuant to sub. (8) and this chapter if the department requires an adjustment based on prevailing or projected interest and inflation rates.

Freeman chemical is not required to submit long-term care cost estimates for the hazardous waste facility. This does not apply.

NR 181.42 (8)(b)9. Closure Responsibilities

A description of how the requirements for pars. (e), (f), (g), and (h) has been provided in the description for NR 181.42 (b) sections 1., 3., 4., 5., and 6.

NR 181.42 (8)(b)10. Applicable Closure Requirements

The applicable closure requirements for the following subchapter sections have been elaborated in NR 181.42 (8):

NR 181.43 (10) Storage Facility Closure
NR 181.45 (5) Incinerator Closure

NR 181.42 (8) Closure Plan Summary

Freeman Chemical has satisfied the General Closure Plan requirements for its existing hazardous waste incinerator(s) and hazardous waste storage tanks/area within this submitted closure plan. The closure plan addressed all areas relative to final closure of the existing facility:

Description of facility closure
Time-line for closure and intervening activities
Maximum inventory of wastes in storage or treatment
Facility and/or equipment decontamination
On-site waste removal or management
Closure completion within 180 days
Disposal or disposition of equipment

Attached is a copy of the site diagram which identifies areas to be included in the closure.

To be decontaminated and/or decommissioned:

SX51 Reaction Water Storage Tank
TWSF Solvent Tankwagon
No.36 "Bag" Incinerator
Liquid Incinerator
Piping & Appurtenances
X502 Hazardous Drum Storage Area
X513 Incinerator Ash Collection Drums
X514 Incinerator Ash Lugger

Also attached are copies of cost estimates provided by various hazardous waste services licensed transport and/or dispose of such wastes.