

Appendix C

Lafarge Administrative Consent Order

IOWA DEPARTMENT OF NATURAL RESOURCES
ADMINISTRATIVE CONSENT ORDER

IN THE MATTER OF:	ADMINISTRATIVE CONSENT ORDER
LAFARGE CORPORATION	NO. 98-AQ-08

TO: LAFARGE CORPORATION
Cement Group/Davenport Plant
Heinz Knopfel
Process and Environmental Manager
P.O. Box 4049
Davenport, Iowa 52808

LAFARGE CORPORATION
c/o Prentice Hall Corporation System, Registered Agent
729 Insurance Exchange Building
Des Moines, Iowa 50309

I. SUMMARY

This Administrative Consent Order is entered into between the Iowa Department of Natural Resources (DNR) and Lafarge Corporation (Lafarge) for the purpose of resolving PM-10 National Ambient Air Quality Violations monitored in Buffalo, Iowa. This consent order supersedes Administrative Consent Order 97-AQ-09 and any conflicting terms of Administrative Consent Order 97-AQ-09 shall terminate upon the signature of this administrative consent order by the director of the DNR.

Any questions regarding this order should be directed to:

Relating to technical requirements:
Doug Campbell
Iowa Department of Natural Resources
7900 Hickman Road, Suite 1
Des Moines, Iowa 50322
Ph: 515/281-8930

Relating to appeal rights:
Anne Preziosi
Iowa Department of Natural Resources
7900 Hickman Road, Suite 1
Des Moines, Iowa 50322
Ph: 515/281-6243

II. STATEMENT OF FACTS

1. DNR has monitored three exceedences of the 24-hour PM-10 National Ambient Air Quality Standard. On October 15, 1995, a DNR monitoring site located at

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11100-110th Avenue in Buffalo, Iowa, recorded a PM-10 concentration of 156.5 micrograms per cubic meter (ug/m^3), and on August 25, 1995, the same monitor recorded a value of 162.7 ug/m^3 . On April 26, 1994, a monitored value of 229 ug/m^3 also was recorded at this site. Per 40 C.F.R. Part 50, Appendix K, the number of expected exceedences was calculated to be 4.8 for the three calendar year period from 1993 through 1995.

2. During the period 1993 through 1995, the annual PM-10 National Ambient Air Quality Standard was exceeded. The monitored annual arithmetic mean for 1993 was 46.7 ug/m^3 , for 1994 was 60.5 ug/m^3 , and for 1995 was 67.1 ug/m^3 , for a three year average of 58.1 ug/m^3 .

3. Lafarge is a cement manufacturer located in Buffalo, Iowa. At DNR's request, Lafarge has provided modeling to DNR. This modeling has established that Lafarge is a contributor to the PM-10 levels monitored.

4. The DNR and Lafarge have cooperated in an effort to reach a resolution in order to avoid having to redesignate the area to be in nonattainment for PM-10. For that purpose, DNR and Lafarge have agreed to enter into this Administrative Consent Order.

Lafarge has already completed the following projects as part of the agreement with DNR, of which this Administrative Consent Order is a part:

- 1) Lafarge has erected a 6-foot high chain-link fence along the shoreline of the their property, completing the entire fencing in of the plant property. The fencing is located as designated on Exhibit "A," which is by this reference made a part of this consent order. This construction was required by air quality permit number 96-A-645S1.
- 2) Lafarge has relocated the discharges for five dust collectors from horizontal to vertical discharges, two feet above the applicable building structures. These stack reconfigurations were included in the revised air dispersion modeling analysis. The table below lists the stacks that have been reconfigured.

Emission Point Number	Source Description	IDNR Permit Number
S0420	Vent Conveying System from Raw Mill	78-A-228S2
S0817	Finish Mill #1 System	78-A-237S2
S0822	Finish Mill Separator #1 System	78-A-238S2
S0684	Belt Conveyor 694 to Coal Silo	78-A-248S4
S0811	Finish Product Holding Bin	30-A-013S1

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- 3) Lafarge has purchased and is currently using a new 8000-gallon watering truck for the control of dust along the haul roads throughout the facility. This new truck has the capability of spraying water or chemical dust suppressant to control the dust generated from traffic.
- 4) Amended air quality permits 76-A-005S1 and 78-A-242S1 were issued on December 22, 1997, authorizing reconstruction of part of the Lafarge Overtrack Silo Distribution system. This reconstruction will include the replacement of two dust collectors, S1043 and S1053. The revised PM-10 emission rate and stack parameter changes for these two sources have been incorporated in the revised air dispersion modeling. The amended permits require reconstruction to begin within 18 months of the date of permit issuance and be completed within 36 months after permit issuance.

III. CONCLUSIONS OF LAW

1. This order is issued pursuant to the provisions of Iowa Code sections 455B.134(9) and 455B.138(1), which authorize the Director to issue any administrative orders necessary to secure compliance with or prevent a violation of Iowa Code chapter 455B, Division II, and the rules promulgated and permits issued pursuant thereto, and to prevent, abate, and control air pollution.

2. The emission units and fugitive emissions located at Lafarge in Buffalo, Iowa, are "air contaminant sources" as defined by Iowa Code section 455B.131(2) and "stationary sources" as defined by 567 Iowa Administrative Code (I.A.C.) 20.2.

3. According to 567 I.A.C. 28.1, the ambient air quality standards for the State of Iowa shall be the National Primary and Secondary Ambient Air Quality Standards (NAAQS) located at 40 C.F.R. Part 50, as amended through July 1, 1987.

4. The primary and secondary 24-hour ambient air quality standard for PM-10 is 150 ug/m^3 , 24-hour average concentration. The standards are attained when the expected number of days per calendar year with a 24-hour average concentration above 150 ug/m^3 , as determined in accordance with 40 C.F.R. Part 50, Appendix K, is equal to or less than one. The concentrations monitored in this case and the resulting number of exceedences constitute a violation of this standard.

5. The level of the primary and secondary annual standards for PM-10 is 50 ug/m^3 , annual arithmetic mean averaged over a three calendar year period. The standards are attained when the expected annual arithmetic mean concentration, as determined in accordance with 40 C.F.R. Part 50, Appendix K, is less than or equal to 50 ug/m^3 . The average of the annual arithmetic means for the period 1993 through 1995 exceeds this standard.

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6. An exceedence of the NAAQS for PM-10 constitutes "air pollution" as defined by Iowa Code section 455B.131(3).

7. In accordance with the provisions of Iowa Code section 455B.134(9), the Director shall issue orders consistent with the rules to cause the abatement or control of air pollution.

8. According to the provisions of 567 I.A.C. 22.1(1) and 567 I.A.C. 22.1(3), the owner or operator of a stationary source shall obtain a permit to install or alter equipment or control equipment. Any modifications occurring as a result of this consent order and subject to the provisions of 567 I.A.C. chapter 22 shall require a construction permit or shall meet the requirements of a construction permit exemption contained in the provisions of 567 I.A.C. 22.1(2).

9. According to the provisions of 567 I.A.C. 23.2(2)"c"(1), no person shall allow, cause or permit any materials to be handled, transported or stored; or a building, its appurtenances or a construction haul road to be used, constructed, altered, repaired or demolished, with the exception of farming operations or dust generated by ordinary travel on unpaved public roads, without taking reasonable precautions to prevent particulate matter in quantities sufficient to create a nuisance, as defined in Iowa Code section 657.1, from becoming airborne. All persons, with the above exceptions, shall take reasonable precautions to prevent the discharge of visible emissions of fugitive dusts beyond the lot line of the property on which the emissions originate. "Reasonable precautions" are defined in this rule.

IV. ORDER

THEREFORE, DNR orders and LAFARGE AGREES to the following:

1. Control of dust on frequently traveled paved and unpaved roads within the facility and quarry shall be performed in accordance with Plan A, Plan C, or Plan D, as specified in Exhibit "B," which is by this reference made a part of this consent order. For purposes of Plans A and D contained in Exhibit "B", an operating day is a 24-hour period beginning with 6 am. Lafarge may change the definition of operating day for the purposes of this consent order by submitting advance notice of the change to DNR in writing. Sweeping or watering need not occur when a rain gauge located at the site indicates that at least 0.2 inch per day of precipitation (water equivalent) has occurred. Lafarge shall conduct its fugitive dust maintenance program according to the specifications in Exhibit "B" which is hereby recognized as providing a 95 percent control efficiency. Lafarge shall maintain daily written records of the amount and type of precipitation, the specific times during which water or suppressant is applied, the amount of water or suppressant applied, and the areas of application. The records shall be

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retained for a period of two years following the date of such measurements and applications and shall be made available to the DNR upon request. Record keeping shall commence no later than April 1, 1998, or within 30 days of entering into this administrative consent order, whichever last occurs.

2. For purposes of the annual average emission rate for PM-10, Lafarge shall follow the "Monthly Limits" listed in Exhibit "C," which is by this reference made a part of this consent order. The applicable parameters specified in Exhibit "C" shall be entered in a monthly log to demonstrate compliance with the monthly limits list. Monthly logs shall be retained for a period of two years following the date of such entries and shall be made available to the Department upon request. Record keeping shall commence no later than April 1, 1998, or within 30 days of entering into this administrative consent order, whichever last occurs.

3. The fuel load in/out (SO 690-3-F) shall be limited to a maximum of 200 tons per hour and 600 tons during any 24-hour period. The calculated PM-10 hourly and annual fugitive emission rates shall be limited to 0.95 lbs/hr and 0.52 tons/yr, respectively. A permit amendment application shall be submitted to the DNR by April 1, 1998, or within 30 days of entering into this administrative consent order, whichever last occurs, requesting that air quality permit number 96-A-6455 be amended as necessary to include the above operating capacity and emissions limitations. Record keeping requirements shall be as specified in the amended air quality permit.

4. Cement Kiln Dust (CKD) shall no longer be placed in the current location adjacent to Highway 22. The placement area adjacent to Highway 22 shall be capped in accordance with plans approved by the Land Quality Bureau of DNR. Both of these actions shall be completed by December 30, 1998, or within 60 days after receipt of approval from DNR, whichever last occurs. This site shall comply with all applicable DNR regulations. The CKD management plan is part of a Solid Waste Disposal permit application currently being reviewed by the Land Quality Bureau of DNR.

5. Reconstruction of the CKD conditioning system shall commence within 12 months of the issuance date of air quality construction permit number 97-A-789 and shall be completed within 18 months of the start of construction date. (Note: Permit number 97-A-789 was issued on December 22, 1997.) As indicated in the construction permit application, the open stockpile (140-1-F), open CKD transfers (140-2-F), alkali bypass fugitives (550-1-F), waste dust bin collector (564-1), and the nodulizer CKD loadout fugitives, dust collector, and dust collector fugitives (580-1-F, 802-1, 802-1-F) shall be removed from the facility. These emission points shall be removed from the facility within 60 days after completion of the CKD reconstruction. Lafarge shall notify the Department in writing that the above emission sources have been removed from the facility within 90 days of completion of the CKD reconstruction.

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6. By no later than May 1, 1998, Lafarge shall submit to DNR permit applications which include the emission rates listed in Exhibit "D". Exhibit "D" is by this reference made a part of this consent order. Additionally, the permit applications shall include the stack parameters used in the revised air dispersion modeling analysis being submitted to the EPA with this administrative consent order.

7. Lafarge shall continue to comply with all paragraphs of Iowa DOT Agreement No. 94-16-069. A copy of this agreement is provided in Exhibit "E" of this Consent Order. Exhibit "E" shall by this reference become a part of this Consent Order.

8. Lafarge shall submit to the Washington DNR Field Office written quarterly reports detailing progress toward the completion of the requirements of this Consent Order, including compliance with the requirements of all air quality construction permits issued as a result of this Consent Order. The quarterly reports shall be due no later than 30 days following the close of each quarter. The first report shall be due on April 30, 1998.

V. NO ADMISSION

While Lafarge agrees to comply with the orders contained herein, it makes no admission as to the Findings of Facts and Conclusions of Law.

VI. WAIVER OF APPEAL RIGHTS

This order is entered into knowingly and with the consent of Lafarge. For that reason, Lafarge waives its right to appeal this order or any part thereof.


VII. NONCOMPLIANCE

Failure to comply with this order may result in the imposition of administrative penalties or referral to the Attorney General's office to obtain injunctive relief and civil penalties pursuant to the provisions of Iowa Code section 455B.146.

VIII. TERMINATION OF THIS ADMINISTRATIVE CONSENT ORDER

This Consent Order may terminate upon a showing by Lafarge, acceptable to DNR, that it has complied with the obligations contained herein.

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ISSUED TO: Lafarge Corporation



LARRY J. WILSON, DIRECTOR
IOWA DEPARTMENT OF NATURAL RESOURCES

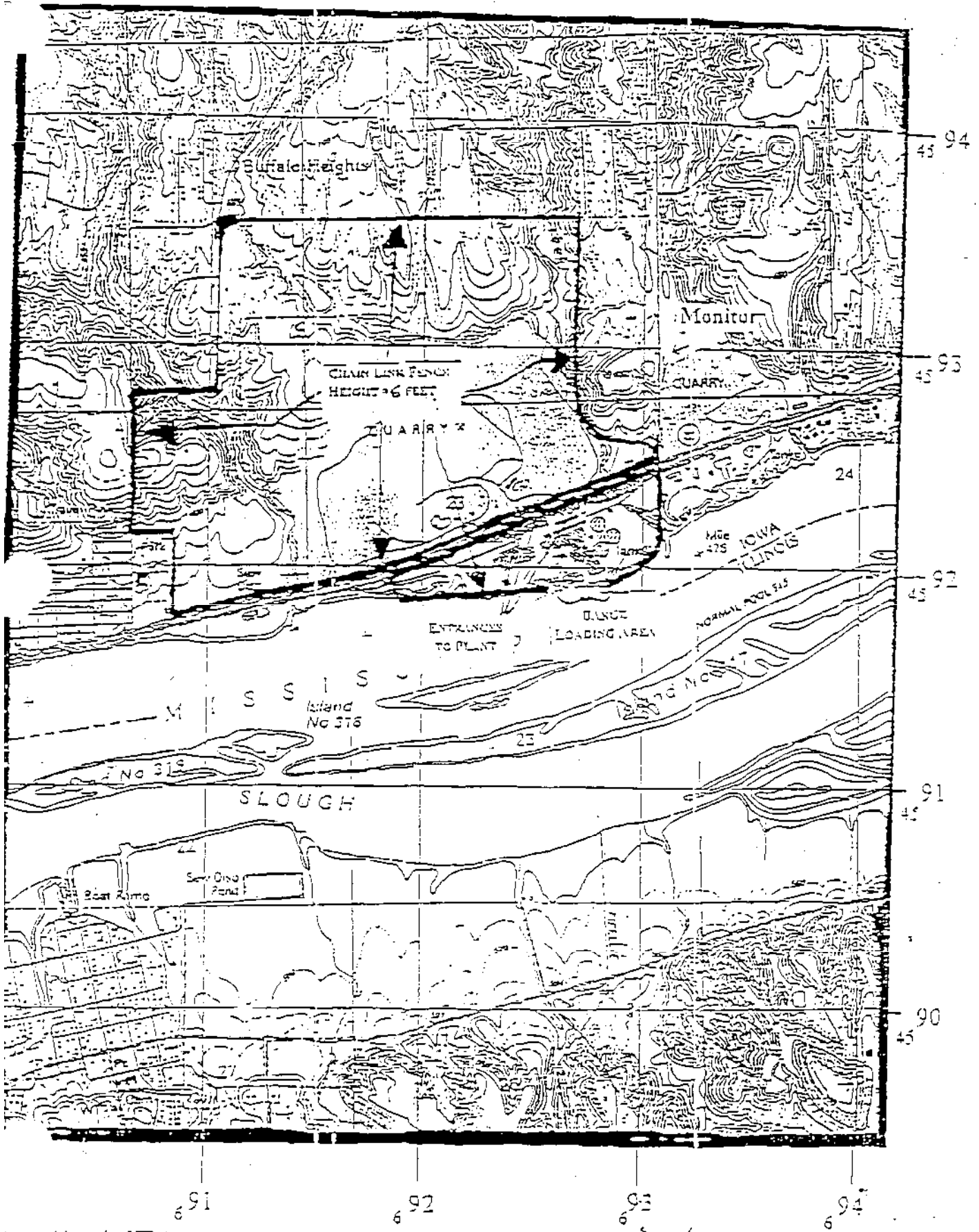
Dated this 19 day of
March, 1998.



for LAFARGE CORPORATION

Dated this 13 day of
MARCH, 1998.

Figure 8-1. Area map - Lafarge Corporation, Buffalo, Iowa.



to markings in UTM coordinates.

Exhibit "A"

4.2 Lafarge Corporation Haul Road Fugitive Dust Plan

Lafarge has the following identifiable fugitive road dust sources.

Table 4-3. Identifiable fugitive road dust sources.

Emission Unit	Paved/ Unpaved	Type	Description
0155-1-F	U	Truck	Rock hauled from quarry to crusher
0160-1-F	U	Truck	Clay hauled from quarry to crusher/storage
0165-1-F	U	Loader	Clay loaded into crusher building hopper
0691-1-F	P	Truck	Unloading of raw material from railcar
0692-1-F	P	Truck	Unloading of clinker from railcar
0695-1-F	P	Truck	Unloading of fuel from railcar
0765-1-F	U	Loader	Raw materials from storage hall to 0765 feeder - Unpaved
0765-2-F	P	Loader	Raw materials from storage hall to 0765 feeder - Paved
1301-1-F	P	Truck	Hauling cement offsite by truck

Lafarge will utilize one of the following methodologies to achieve a 95 percent control efficiency for fugitive dust from unpaved roads unless otherwise agreed upon with the IDNR:

Unpaved Roads

Plan A: Watering

Plan C: Chemical Dust Suppressant

Paved Roads

Plan A: Water flushing followed by sweeping

Plan D: High Pressure Washing

4.2.1 Quarry Roads

Unpaved Roads 155, 160, and 165: Plan A - Watering

The control efficiency of unpaved road watering depends on the:

- Amount of water applied
- Time between re-applications
- Traffic volume
- Meteorological conditions

Exhibit "B"

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An empirical model for the performance of water as a control technique has been developed.¹ The model is as follows:

$$C = 100 - \left(\frac{0.8 p d t}{i} \right)$$

where:

- C = average control efficiency, %
- p = potential average hourly daytime evaporation rate, mm/h
- d = average hourly daytime traffic rate (h⁻¹)
- i = application intensity, L/m²
- t = time since last application, hours

$$p = 0.0049(40, \text{ Southeast Iowa}) = \frac{0.196 \text{ mm}}{\text{hr}}$$

Calculations:

Quarry sources include: 155, 160, and 165

The vehicle traffic for 155 and 160 combined based on monthly (730 hours) production limits is:

$$d = \left(\frac{365,000 \text{ tons} + 55,480 \text{ tons}}{730 \text{ hr}} \right) \left(\frac{1 \text{ truck}}{85 \text{ tons}} \right) \left(\frac{24 \text{ hrs / day}}{12 \text{ hrs typical operation / day}} \right) = \frac{13.6 \text{ trucks}}{\text{hr}} \text{ (one way)}$$

The vehicle traffic for 165 based on monthly (730 hours) production limits is:

$$d = \left(\frac{55,480 \text{ tons}}{730 \text{ hr}} \right) \left(\frac{1 \text{ load}}{12 \text{ tons}} \right) \left(\frac{24 \text{ hrs / day}}{12 \text{ hrs typical operation / day}} \right) = \frac{12.7 \text{ trucks}}{\text{hr}} \text{ (one way)}$$

Average quarry traffic is then = 13.2 trucks/hr

The desired control efficiency is 95 percent. The corresponding application intensity is calculated as:

$$95\% \text{ control} = 100 - \frac{0.8(0.196)(13.2)(12)}{i}$$

$$i = \frac{24.8}{5}$$

$$= \frac{5.0 \text{ liters}}{\text{m}^2} = \frac{0.12 \text{ gal}}{\text{ft}^2}$$

¹Cowherd, Jr., Chaffin and John S., and John S. Kinsey, Air Pollution Engineering Manual, AWWA, 1992, pp. 141-144.

These vehicles are approximately 10 feet wide. The water truck sprays a 20 foot wide path, and consequently waters both sides of the haul road on one pass. The volume of water per linear foot is calculated as 0.12 gal/ft²

$$= \frac{0.12 \text{ gal}}{\text{ft}^2} (20 \text{ feet}) = \frac{2.4 \text{ gal}}{\text{ft}}$$

Sources 155, 160, and 165 travel a combined one way distance of (0.5 miles + 0.095 miles) = 0.595 miles

The volume of water required per day (12 hours of quarry operation) is:

$$= 0.595 \text{ miles} \left(\frac{5,280 \text{ ft}}{\text{mile}} \right) \left(\frac{2.4 \text{ gal}}{\text{ft}} \right) = 7,540 \text{ gallons / day}$$

4.2.2 Plant Roads

Paved Roads 691-1, 692-1, and 695-1: Plan A: Water flushing followed by sweeping.

The control efficiency of paved road watering/sweeping depends on the:

- Amount of water applied
- Traffic frequency

An empirical model for the performance of water flushing followed by sweeping as a control technique has been developed.² The model is as follows:

$$C = 96 - 0.263V$$

where:

C = control efficiency, %

V = number of vehicle passes since application

Equation assumes water applied at 0.48 gal/sq.yd. = 0.053 gal/sq.ft.

With a 20 foot coverage area, the number of gallons per linear foot is:

$$\left(\frac{0.053 \text{ gal}}{\text{ft}^2} \right) (20 \text{ ft path}) = \frac{1.06 \text{ gal}}{\text{ft}}$$

A control efficiency of 90 percent is desired for paved roads. The equation provides an instantaneous efficiency rather than an average. Therefore, the average must be

²Cowherd, Jr., Chatten and John S., and John S. Kinsey, Air Pollution Engineering Manual, AWMA, 1992, pp. 145.

calculated. Immediately after sweeping, C = 96%, it then decreases with the number of passes. To achieve an average efficiency of 90%, the efficiency must remain between 84% and 96%. The number of vehicle passes to achieve 90% is calculated as

$$84 = 96 - 0.263V$$

$$V = \frac{12}{0.263} = 45.6 \text{ vehicle passes between applications}$$

Calculations:

Rail unloading sources include 691-1, 692-1, and 695-1. The rail unloading process can only fill three trucks/hr therefor the vehicle passes are fixed. As the rail unloading is a daylight process, 12 hour day, the maximum number of trucks per day is estimated as 36. Therefore one pass per day of the watering truck and sweeper will be sufficient.

The distance traveled varies significantly with the material being unloaded. The maximum distance traveled is for clay. The water required is calculated as follows:

$$\text{Volume} = (0.74 \text{ miles}) \left(\frac{5,280 \text{ feet}}{\text{mile}} \right) \left(\frac{1.06 \text{ gal}}{\text{ft}} \right) = \frac{4,142 \text{ gal}}{\text{day}}$$

Paved Road 1301-1: Plan A: Water flushing followed by sweeping.

The source, 1301-1, Cement Loadout, has a monthly production limit of 262,300 tons.

$$d = \left(\frac{262,300 \text{ tons}}{730 \text{ hr}} \right) \left(\frac{1 \text{ load}}{50 \text{ tons}} \right) = \frac{7.2 \text{ trucks}}{\text{hr}} = \frac{173 \text{ trucks}}{\text{day}}$$

As 45.6 passes are calculated as "V", re-applications of water and sweeping would be required every 6.3 hours. The vehicles have a distance of 0.030 miles = 422 feet. At 1.06 gal/sq.ft, 448 gallons are required every 6.3 hours. Alternatively, 853 gallons every 12 hours, or 1700 gallons per day.

Sources 765-1 and 765-2, transporting raw materials from the storage hall to the 0765 feeder, are the same vehicle traveling on half paved road and half unpaved road. The distance for each is 220 feet. The source is limited to 50,400 tons of raw material while the kiln is in operation.

Paved Road 765-2: Plan A: Water flushing followed by sweeping.

$$d = \left(\frac{50,400 \text{ tons}}{730 \text{ hr}} \right) \left(\frac{1 \text{ load}}{12 \text{ tons}} \right) = \frac{5.75 \text{ loads}}{\text{hr}} = \frac{138 \text{ loads}}{\text{day}}$$

The base rate of re-application is 138 trips/day/(V= 45.6 passes between applications) = 3 applications/day.

The required volume of water per application is:

$$\text{Volume} = 220 \text{ ft} \left(\frac{1.06 \text{ gal}}{\text{ft}} \right) = \frac{233 \text{ gal}}{\text{application}}$$

Alternatively, 466 gallons can be applied per 16 hour period, or 700 gallons once per day.

Unpaved Road 765-1: Plan A: Watering.

The number of trips/hr was calculated above. The intensity of water application is:

$$\begin{aligned} 95\% \text{ control} &= 100 - \frac{0.3(0.196)(5.75)(24)}{i} \\ i &= \frac{216}{5} \\ &= \frac{4.3 \text{ liters}}{\text{m}^2} = \frac{0.11 \text{ gal}}{\text{ft}^2} \end{aligned}$$

The volume of water per linear foot is:

$$= \frac{0.11 \text{ gal}}{\text{ft}^2} (20 \text{ feet}) = \frac{2.2 \text{ gal}}{\text{ft}}$$

The total volume of water is:

$$= 220 \left(\frac{2.2 \text{ gal}}{\text{ft}} \right) = \frac{466 \text{ gal}}{\text{day}}$$

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Plan A - Summary for Paved and Unpaved Roads

Plan A can achieve 95 percent control of fugitive PM₁₀ emissions with the associated sources operating at maximum capacity, if the following volumes of water are applied once per day.

Quarry Roads = 7,500 gallons (maximum)

Plant Roads = 7,000 gallons (maximum)

Plan C - Unpaved Roads: Chemical Dust Suppressant

Apply a chemical dust suppressant to bring the ground inventory to 0.25 gal (concentrate)/sq. yd. After the initial application, re-applications will be applied every two weeks at a rate of 0.05 gal(concentrate)/sq. yd. to achieve 95 percent control. (Air Pollution Engineering Manual, Figure 6, Page 144). This applies to unpaved roads 155, 160, and 165. The total distance is 0.595 miles. The corresponding total square yards, assuming a 20 foot wide road, is 6,981. The initial application of chemical dust suppressant required to achieve a ground inventory of 0.25 gallons per square yard equals 1,745 gallons concentrate. The re-application rate will be 349 gallons concentrate every two weeks.

Plan D - Paved Roads: High Pressure Washing

A high pressure washing system will be used as an alternative to "water flushing followed by sweeping." The water volumes required are the same as calculated for Plan A for plant roads. However, the pressurized water spraying system washes the particles from the pavement, and forces the particles off of the path of travel, all in one pass.

Plan D can achieve 95 percent control of fugitive PM₁₀ emissions with the associated sources operating at maximum capacity, if the following volumes of water are applied once per day.

Plant Roads = 7,000 gallons (maximum)

Recordkeeping:

Lafarge will maintain a daily log of the following:

1. The date and time
2. The specific watering plan being used
3. The volume of water or other dust suppressant applied (if applicable to the plan being utilized), and
4. The distance traveled (if applicable to the plan being utilized).

Or

- 5a. The amount and type of precipitation, if the daily precipitation is greater than 0.2 inches. (The calculations listed below indicate that additional watering beyond 0.2 inches of precipitation will not be needed to achieve 95 percent control).
- 5b. If the ambient temperature during the day is less than 35°F. or conditions due to weather in combination with the application of water or dust suppressant would create dangerous conditions, then the fugitive dust plan will be postponed for that operating day and the temperature will be recorded in a log.
- 5c. Records to demonstrate that the source will not be in operation during the operating day, such that fugitive dust controls will not be required (as described in the following pages).

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Fugitive Dust Plan Exception: The fugitive dust plan, regardless of the specific plan, will be postponed if the following amount of precipitation is obtained during the day (as 95 percent control will be achieved from precipitation, and no further control beyond 95 percent, is required).

Quarry:

$$i = \frac{5.0 \text{ l}}{\text{m}^2} = \frac{0.12 \text{ gal}}{\text{ft}^2}$$

$$= \frac{5,000 \text{ cm}^3}{\text{m}^2}$$

$$= \frac{5,000 \text{ cm}^3}{10,000 \text{ cm}^2}$$

$$155, 160, \& 165 = 0.5 \text{ cm of rain} = \frac{0.2 \text{ inches}}{\text{day}}$$

Plant:

$$i = \frac{0.053 \text{ gal}}{\text{ft}^2} = \frac{0.201 \text{ l}}{\text{ft}^2}$$

$$= \frac{2.2 \text{ l}}{\text{m}^2}$$

$$= \frac{2,200 \text{ cm}^3}{10,000 \text{ cm}^2}$$

$$691 - 1, 692 - 1, \& 695 - 1 = 0.22 \text{ cm of rain} = \frac{0.09 \text{ inches}}{\text{day}}$$

$$1301 - 1 = 4(0.22 \text{ cm}) = \frac{0.35 \text{ inches}}{\text{day}}$$

$$765 - 2 = 2(0.22 \text{ cm}) = \frac{0.17 \text{ inches}}{\text{day}}$$

$$765 - 1 = \frac{0.11 \text{ gal}}{\text{ft}^2} = \frac{0.2 \text{ inches}}{\text{day}}$$

$$\text{average} = \frac{0.2 \text{ inches}}{\text{day}}$$

Therefore 95 percent fugitive dust control will be achieved, for both the plant and quarry roads, if greater than 0.2 inches of precipitation is received during the day.

Fugitive Dust Plan Exception: If the ambient temperature during the day is less than 35°F. or conditions due to weather in combination with the application of water or dust suppressant would create dangerous conditions, then the fugitive dust plan will be postponed for that operating day and the temperature will be recorded in a log.

Fugitive Dust Plan Exception (Quarry): If the quarry is not in operation during an operating day, the fugitive dust plan will be postponed for that operating day. Records will be kept to demonstrate that the quarry was not operating.

Fugitive Dust Plan Exception (Plant): If the plant is not in operation during an operating day, the fugitive dust plan will be postponed for that operating day, and records will be kept to demonstrate that the plant was not operating.

On weekends, plant traffic is usually less than 10 percent of that on weekdays. On days when plant traffic will be less than 10 percent of maximum, the fugitive dust plan will be postponed for that day. The justification for this exemption is that the uncontrolled emission rate from 17 trucks is mathematically the same, or less, than the fugitive dust from 173 trucks at 90 percent control. The largest plant haul road fugitive dust source is number 1301 (trucks hauling out cement). 10 percent of the maximum daily number of cement trucks corresponds to approximately 17 trucks. Therefore, if less than 17 truckloads of cement will be sent on a day, the fugitive dust plan will be postponed for that day, and a record of the number of cement trucks during the day will be kept.

Exhibit - C. Fugitive Sources: Monthly Limits - Lafarge Corporation, Davenport Plant.

Emission Unit No.	Source Description	Monthly Limits	Basis ¹
0070-1-F	Raw Materials Loading in Quarry	365,000	tons raw materials to crusher
0081-1-F	Quarry Drilling Fugitives	365,000	tons raw materials to crusher
0110-2-F	Storage Pile Load In/Out	55,480	tons clay to crusher
0120-2-F	Storage Pile Load In/Out	55,480	tons clay to crusher
0130-2-F	Storage Pile Load In/Out	55,480	tons clay to crusher
0155-1-F	Quarry Haulroad - Rock	365,000	tons limestone to crusher
0160-1-F	Quarry Haulroad - Clay	55,480	tons clay to crusher
0165-1-F	Haulroad - Clay from Storage Piles to Crusher	55,480	tons clay to crusher
0200-1-F	0235 - Filling Clay Hopper	123,480	tons alternative raw materials and clay to kiln
0200-2-F	0232 - Filling Stone Hopper	365,000	tons raw materials to crusher
0200-3-F	0235 Belt Transfer to 0230	123,480	tons alternative raw materials and clay to kiln
0200-4-F	0232 Belt Transfer to 0230	365,000	tons raw materials to crusher
0200-5-F	0230 Belt Transfer to 0225 Crusher	365,000	tons raw materials to crusher
0200-6-F	0225 Crusher Transfer to 0221	365,000	tons raw materials to crusher
0200-7-F	0221 Belt Transfer to 0208	365,000	tons raw materials to crusher
0200-8-F	0225 Crushing Fugitives	365,000	tons raw materials to crusher
0203-1-F	Transfer House Material Transfer Fugitives	365,000	tons raw materials to crusher
0300-1-F	0387 Belt Transfer to 0360	365,000	tons raw materials to crusher
0300-2-F	0387 Belt Transfer to 0341	365,000	tons raw materials to crusher
0300-3-F	Stacking 0341 to Pile	365,000	tons raw materials to crusher
0300-4-F	Reclaim of Pile to Belt 0332	365,000	tons raw materials to crusher
0387-1-F	Belt Conveyor Over Road	365,000	tons raw materials to crusher
0400-1-F	0493,0495,0497 Bins to 0489 Belt	365,000	tons raw materials to crusher
0691-1-F	Haul Road - Rail Unloading Raw Materials	55,480	tons clay to kiln
0692-1-F	Haul Road - Rail Unloading Clinker	262,300	tons cement production
0695-1-F	Haul Road - Rail Unloading Fuel	32,761	tons fuel usage
0765-1-F	Haulroad to 0765 Feeder - Unpaved	262,300	tons cement production
0765-2-F	Haulroad to 0765 Feeder - Paved	262,300	tons cement production
0800-2-F	0703 Gypsum Transfer to 0867	17,082	tons gypsum usage
0802-1-F	0802 Nodulizer Dust Collector Fugitives	10,646	tons CKD production
1300-1-F	Rail Loading Fugitives	262,300	tons cement production
1300-2-F	Truck Loading Fugitives	262,300	tons cement production
1301-1-F	Haulroad - Truck Loadout of Cement	262,300	tons cement production
2601-1-F	Sarge Loading Spout Fugitives	262,300	tons cement production

¹Following is a list of the parameters that will be recorded in a monthly log to demonstrate compliance with the monthly limits listed

Plant process	Monthly Limit	Specific parameter recorded
Quarry =	365,000	tons raw materials to crusher
Quarry =	55,480	tons clay to crusher
Kiln =	123,480	tons alternative raw materials and clay to kiln
Kiln =	55,480	tons clay to kiln
Kiln =	32,761	tons fuel usage
Kiln =	10,646	tons CKD production
Finish Mill =	262,300	tons cement production
Finish Mill =	17,082	tons gypsum usage

Exhibit D. Allowables for Dust Collectors (D.C.)

Emission Point No.	Dust Collector Unit No.	Description	Allowable Emission Rate (lb PM-10/hr)
0081-0	0081-1	Quarry Drill D.C.	0.13
0203-0	0203-1	Transfer House D.C.	0.20
0218-0	0218-1	Crusher D.C.	1.54
0327-0	0327-1	D.C. at Dome	0.09
0404-0	0404-1	Homogenization Silo D.C.	0.85
0420-0	0420-1	Raw Mill Air Slides D.C.	0.14
0466-0	0466-1,2	Kiln/Raw Mill and Alkali Bypass D.C.s	75.0
0498-0	0498-1	0489 Belt D.C.	0.32
0504-0	0504-1	Kiln Feed System D.C.	0.32
0611-0	0611-1	Clinker Cooler D.C.	17.92
0667-0	0667-1	Coal Mill D.C.	2.19
0684-0	0684-1	Coal Silo D.C.	0.27
0709-0	0709-1	Clinker Handling D.C.	0.25
0723-0	0723-1	Clinker Silo Recirc D.C.	0.16
0743-0	0743-1	Clinker Handling D.C.	1.18
0811-0	0811-1	Finish Mill Holding Bin D.C.	0.07
0817-0	0817-1	Finish Mill D.C.	2.53
0822-0	0822-1	Finish Mill Air Sep. D.C.	1.08
0950-0	0950-1	Barge Loading Silo D.C.	1.02
1007-0	1007-1	Cement Silo D.C.	0.10
1017-0	1017-1	Cement Silo D.C.	0.10
1027-0	1027-1	Cement Silo D.C.	0.08
1033-0	1033-1	Cement Silo D.C.	0.10
1037-0	1037-1	Cement Silo D.C.	0.21
1044-0	1044-1	Bulk Truck Loadout D.C.	0.08
1045-0	1045-1	Bulk Truck Loadout D.C.	0.08
1046-0	1046-1	Cement Silo D.C.	0.05
1047-0	1047-1	Center Spout over Tracks D.C.	0.06
1048-0	1048-1	Railcar Loadout Spouts Silo D.C.	0.06
1183-0	1183-1	Backup Packing Machine D.C.	0.29
1257-0	1257-1	Mason Packing Machine D.C.	0.16
1263-0	1263-1	Portland Packing Machine D.C.	0.16
1310-0	1310-1	Vacuclader	0.06
1320-0	1320-1	Vacuclader	0.06
2601-0	2601-1	Barge Loading Spout D.C.	0.06

Exhibit "E"

Iowa DOT Agreement No. 94-16-069

AGREEMENT

County Scott
 Project No. Iowa 22
 Iowa DOT
 Agreement No. 94-16-069

This AGREEMENT, made and entered into by and between the State of Iowa, Iowa Department of Transportation (herein DOT), and the "Lafarge Corporation" (previously "Davenport Cement Co."), an Iowa general partnership, (hereafter COMPANY) as follows:

WITNESSETH; that

WHEREAS, the COMPANY and the DOT previously entered into Agreements for vehicles to cross Iowa Highway No. 22 in the City of Buffalo in Scott County, Iowa. The Agreements were signed by the COMPANY and the DOT on September 1 and 14, 1987, and August 20 and 30, 1990, respectively, and;

WHEREAS, Chapter 321E, Code of Iowa, authorizes the Iowa Department of Transportation to issue special permits; and

WHEREAS, the DOT is willing to extend the terms of the Agreements to the COMPANY for the crossing of Iowa Highway No. 22 for the purpose of transporting limestone materials from the north side quarry to the COMPANY's south side plant, subject to the stipulation hereinafter set forth.

NOW THEREFORE, in consideration of these premises and the mutually dependent covenants herein contained, it is agreed as follows:

1. The COMPANY agrees that only one (1) point of ingress and one (1) point of egress, opposite one another at Station 262+20 shall be utilized in crossing Iowa Highway No 22 with the vehicles covered by special permit in accord with the terms of this Agreement.
2. The DOT shall furnish and install advance warning signs on Iowa Highway No. 22 in advance of the crossing in compliance with the Iowa Manual on Uniform Traffic Control Devices for Streets and Highways.
3. The COMPANY agrees to remove immediately any and all foreign material which may be deposited on the Iowa 22 roadbed as a result of the COMPANY's operations under this Agreement.

4. The COMPANY shall indemnify and save harmless the DOT and the State of Iowa from any and all causes of action, suits of law or in equity, or losses, damages, claims, or demands, and from all liability of whatsoever nature for and on account of or due to any error, omission or negligent act of the COMPANY, its members employees, agents, subcontractors, or assigns, arising out of or in connection with this Agreement of the performance of any part thereof or for any accident which may occur as a result of the COMPANY vehicles using the crossing.
5. If future rehabilitation at the crossing at Station 262+20 on Iowa Highway No. 22 becomes necessary, it is understood and agreed that the DOT shall have the responsibility of deciding the proper highway rehabilitation, including all phases thereof.
6. The DOT shall perform any required future rehabilitation work and will bill the COMPANY for the actual cost of that portion of the rehabilitation work attributed to the COMPANY's use of the crossing at Station 262+20 by vehicles covered by special permits.
7. The COMPANY agrees to reimburse the DOT for the actual cost of that portion of the rehabilitation at the crossing at Station 262+20 attributed to the COMPANY's use of the crossing by vehicles covered under specific permits. Failure by the COMPANY to reimburse the DOT shall cause cancellation of this Agreement by written notification to the COMPANY by the DOT. After the COMPANY's use of Iowa 22 under this Agreement has been terminated, the DOT will assess the roadway damage and bill the COMPANY for said costs based on the actual quantities in place and the accepted contract bid.
8. The DOT shall issue an annual permit(s) to the COMPANY upon application therefore for each vehicle used in transporting the limestone material over the crossing. The charge for the permit(s), payable in advance to the DOT, shall be at the then current rate per vehicle per year.
9. The terms of this Agreement shall be extended for a period of three (3) additional (consecutive) years. Prior to the expiration date, the COMPANY may, in writing, request that the Agreement be extended again.
10. The COMPANY agrees to comply with any and all provisions set forth in Chapter 321E, Code of Iowa. Failure by the COMPANY to comply with said Code provisions or terms of this Agreement shall constitute sufficient cause for the DOT to void this Agreement immediately.
11. This Agreement may be executed in two counterparts, each of which so executed shall be deemed to be an original and both shall constitute but one and the same instrument.

IN WITNESS WHEREOF, each of the parties hereto has executed Agreement No. 94-16-069 as of the date shown opposite its signature below.

LAFARGE CORPORATION

BY *[Signature]*
Plant Manager

On this 7th day of October, 1993, personally appeared duly sworn did say that he is Doug Buchanan of the LaFarge Corporation and that said instrument was signed and executed by him in behalf of the said Corporation ~~by authority of its Board of Directors as its voluntary act and deed.~~ *[Signature]*

[Signature]
Notary Public in and for said State

Executed by the DOT this 3rd day of Nov., 1993.

IOWA DEPARTMENT OF TRANSPORTATION

BY *[Signature]*
George F. Sisson
Deputy Director-Development
Highway Division

ATTEST:

BY *[Signature]*

East Central Iowa Transportation Center
430 Sixteenth Avenue SW
P.O. Box 3150, Cedar Rapids, IA 52406-3150

319-364-0235
FAX: 319-364-9614

December 18, 1996

Re: Iowa 22
Scott County
Addendum 97-A-056

George Kistler
Plant Manager
Lafarge Corporation
P.O. Box 4049
Davenport, IA 52808

RECEIVED
DEC 19 1996
[Handwritten signatures and initials over a stamp]

SUBJECT: Hauling Operations on Iowa 22-Lafarge Corporation

Dear Mr. Kistler:

Attached is your original of the fully executed addendum to Agreement 94-16-069 between Lafarge Corporation and the Iowa Department of Transportation as referenced above. The addendum allows for a five (5) year extension of hauling operations across Iowa 22 within the City of Buffalo.

Thank you for your cooperation in the processing of this agreement.
Very truly yours,

Richard E. Kautz, P.E.
Local Systems Engineer

REK:keh
Attachment
cc: Doug Rick, Davenport AME, Davenport, IA 52809 w/copy of addendum

ADDENDUM TO
AGREEMENT 94-16-069

County Scott

Lafarge Corporation

Project No. Iowa 22

Iowa DOT

Addendum No. 97-A-056

IT IS AGREED between the State of Iowa, Iowa Department of Transportation (herein IDOT), Maintenance Division and the Lafarge Corporation in Scott County, Iowa, (herein COMPANY) as follows:

1. The COMPANY is currently conducting hauling operations across Iowa 22 within the City of Buffalo for the purpose of transporting limestone materials from the COMPANY'S north side quarry to the south side of Iowa 22.
2. The COMPANY and DOT previously entered into Agreement 94-16-069 for the above referenced hauling operations. The Agreement was signed by the COMPANY and DOT on October 7 and November 3, 1993 respectively.
3. The COMPANY, per a September 24, 1996 letter, has requested an extension of the agreement for hauling operations on Iowa 22 in the City of Buffalo in Scott County Iowa (see Exhibit A attached).
4. The terms and conditions contained in previously executed Agreement 94-16-069 (see section 2 above) shall be extended for a period of five (5) years. Prior to the expiration date, the COMPANY may, in writing, request that the Agreement be extended again. For the purpose of this Addendum, the "expiration date" shall be defined as; five (5) years subsequent to the date of the COMPANY'S signature on this Addendum.
5. All provisions contained in previously executed Agreement 94-16-069 which are not revised or in any way affected by this addendum shall remain in full force and effect.
6. If any section, provision, or part of this Addendum shall be found to be invalid or unconstitutional, such judgment shall not affect the validity of the

Addendum as a whole or any section, provision, or part thereof not found to be invalid or unconstitutional.

7. This Addendum may be executed in two counterparts, each of which so executed shall be deemed to be an original.
8. Any subsequent change or modification to the terms of this Addendum shall be in the form of a duly executed Amendment to this Addendum.

IN WITNESS WHEREOF, each of the parties hereto has executed Preconstruction

Agreement No. 97-A-056 as of the date shown opposite its signature below.

LAFARGE CORPORATION:

BY: *George J. Koster*
President *Plant Manager*

On this 19 Day of NOV, 1996, personally appeared duly sworn did say that
Plant Manager
he is ~~President~~ of the Lafarge Corporation and that said instrument was signed and executed
by him on behalf of said Corporation by authority of its Board of Directors as its voluntary
act and deed.

Ronald M. Stille
Notary Public in and for the State of Iowa

IOWA DEPARTMENT OF TRANSPORTATION:

BY *Neil Volmer* 12/16/96, 1996
Neil Volmer Date
Director
Maintenance Division

Attest: *Ed Fowler*



Agreement 97-A-056

September 24, 1996

Douglas L. Rick, P.E.
Iowa Department of Transportation
Davenport Maintenance Office
P. O. Box 2646
Davenport, IA 52809

Dear Mr. Rick:

In reference to your attached letter dated September 23, 1996, Lafarge Corporation would like to continue the IA22 crossing agreement.

Sincerely,

George Kistler
Plant Manager

GK/kv
Attachment

RECEIVED
LAFARGE

SEP 23 1996

Administrative Consent Orders

EPA Rulemakings

CFR: 40 C.F.R. 52.820(c)(54)(i)(A)(B)

FRM: 56 FR 56158 (11/1/91)

PRM: 56 FR 29918 (7/1/91)

State Submission: 3/13/91

State Proposal: none

State Final: none

APDB File: IA-29

Description: This revision approved Administrative Orders and revised permits for the Archer Daniels Midland wet corn milling facility and the Interstate Power M.L. Kapp electric utility steam generating facility.

CFR: 40 C.F.R. 52.820(c)(65)(i)(A)(B)(C)

FRM: 62 FR 63454 (12/1/97)

PRM: 62 FR 43681 (8/15/97)

State Submission: 6/13/96, 4/21/97

State Proposal: none

State Final: none

APDB File: IA-49

Description: This revision approved state permits and source specific emission limits and conditions for the Grain Processing Corporation, the Muscatine Power and Water Company, and Monsanto Corporation in Muscatine, Iowa.

CFR: 40 C.F.R. 52.820(d)

FRM: 64 FR 12087 (3/11/99)

PRM: 64 FR 12141 (3/11/99)

State Submission: 9/11/98

State Proposal: 6/26/98

State Final: 7/20/98

APDB File: IA-67

Description: This revision approved an Administrative Consent Order for the IES Utilities, Inc. in Cedar Rapids area which provides for the attainment and maintenance of the SO₂ national ambient air quality standards (NAAQS).

Administrative Consent Orders

CFR: 40 C.F.R. 52.820(d)

FRM: 64 FR 13343 (3/18/99)

PRM: 64 FR 13378 (3/18/99)

State Submission: 10/1/98

State Proposal: 8/21/98

State Final: 9/21/98

APDB File: IA-55

Description: This revision approved two state Administrative Consent Orders for Linwood Corporation and Lafarge Corporation which provides for the attainment and maintenance of the particulate matter NAAQS in Buffalo, Iowa.

Difference Between the State and EPA-Approved Regulation:

None.