Consent No. 2007.178

DISCHARGE PERMIT

Pursuant to Section 104B of the Resource Management Act 1991, the Otago Regional Council grants consent to:

Name: Holcim (New Zealand) Limited

Address: 1/1 Show Place, Addington, Christchurch

to discharge contaminants to air

for the purpose of constructing and operating a cement manufacturing plant and associated facilities

for a term of 35 years

Location of activity: An area of approximately 0.5 square kilometres, adjacent to the Weston Ngapara Road, approximately 2 kilometres north-west of Weston, North Otago.

Legal description of land: Pt Lot 12 DP 195; Lot 1 DP 8498; Secs 61-62 Blk III Oamaru SD; Lots 1-4 DP 195; Pt Secs 1-2 Sec 30 Blk III Oamaru SD.

Map reference: Area bounded by: NZMS 260 J41:437-697 (north)
NZMS 260 J41:442-695 (north-east)
NZMS 260 J41:444-683 (south-east)
NZMS 260 J41:437-690 (south west)
NZMS 260 J41:434-695 (north-west)

Conditions:

General

1. (a) The discharges to air shall be from the manufacture of cement and the associated facilities on site.
   (a) Fuel burnt under this consent shall be limited to lignite coal, diesel and waste oil, as specified in the application.

2. The Consent Holder shall install and operate the plant and associated processes generally in accordance with the documentation provided in the application dated 21 February 2007 and any supplementary information provided to the Consent Authority subsequent to that application.

3. There shall be no discharge of odour as a result of the exercise of this permit that is noxious, dangerous, offensive or objectionable to an extent that it is likely to

cause an adverse effect beyond the boundary of the site in the opinion of an authorised officer of the Consent Authority.

4. There shall be no discharge of particulate matter as a result of the exercise of this permit that is noxious, dangerous, offensive or objectionable to an extent that it is likely to cause an adverse effect beyond the boundary of the site in the opinion of an authorised officer of the Consent Authority.

5. There shall be no discharge of other air pollutants as a result of the exercise of this permit that is noxious, dangerous, offensive or objectionable to an extent that it is likely to cause an adverse effect beyond the boundary of the site in the opinion of an authorised officer of the Consent Authority.

6. Where from any cause (accidental or otherwise), a discharge not authorised by this consent and associated with the Consent Holder's activities occurs otherwise than in conformity with this consent the Consent Holder shall:
   (a) Proceed with all diligence to take such action or execute such work as may be necessary to stop such escape; and
   (b) Take all reasonable steps to remedy or mitigate any adverse effects resulting from the escape; and
   (c) Notify the Consent Authority within 24 hours
   (d) A written report within 72 hours of the escape, indicating the cause of the escape and the measures put in place to prevent a repeat of the escape.

? Routine monitoring of oil fuels shall be carried out as follows:
   (a) A sample of every load of oil fuel received at Weston shall be analysed for the following:
      - Lead
      - Cadmium
      - Mercury
      - Total Organic Halogens
      - Sulphur
   (b) If total halogens as measured by XRF exceed 4000ppm, then the total sample shall be analysed quantitatively to determine total organic halogens.
   (c) A composite sample, made up of sub-samples from different fuel shipments, shall be analysed for PCBs at least weekly. No more than 5 sub-samples shall form a composite. If PCBs are detected in the composite, then the sub-samples for each shipment shall be individually analysed for PCBs.
   (d) All samples shall be retained for two years after the time of collection and shall be made available to the Council upon request.
   (e) Each month, one of the samples under subclause (a) shall be analysed quantitatively by an independent accredited analytical laboratory for the following substances:
      - Lead
      - Arsenic

- Cadmium
- Chromium
- Zinc
- Total Organic Halogens
- Copper Mercury
- Aluminium
- PCBs

?. Other than as provided for below, any fuel oils received for which levels of the substances listed below exceed the following limits shall not be used as fuel without prior consultation with the Council and shall be disposed of as directed by the Council:

Lead	5000ppm
Cadmium	100ppm
Mercury	100ppm
PCBs	20ppm
Total Organic Halogens	4000ppm
Sulphur	3%

However, an oil shipment may be burnt prior to the PCB results being received. All results exceeding the above limit shall be notified to the Council within one week of the receipt of those results. The number of exceedances shall be no more than three in any 12-month period. If this is exceeded, then the Council may review this condition. Compliance with this condition shall be based on all results of all PCB analyses required by conditions.

Process Conditions

7. The height of the stack on the cement kiln baghouse shall extend to a height of at least 172 RL.

8. The height of the stack on the cement mill baghouse shall extend to a height of at least 123 RL.

9. The exit velocity of the exhaust gases from the cement mill baghouse and the cement kiln baghouse shall be designed to be at least 15 metres per second.

10. All baghouses that are designed to have an air flow rate that is 7,000 cubic metres per hour or more shall be fitted with burst bag detectors.

11. The baghouse on the exhaust of the cement kiln shall have multiple compartments, which can be individually isolated in case of bag failure. There shall be sufficient compartments in the baghouse to allow adequate performance to be maintained when filter bags fail. Each compartment shall be fitted with burst bag detectors.

12. The discharges from all stacks on site that are designed for exhausts that have an air flow rate greater than 10,000 cubic metres per hour shall be directed vertically into the air and shall not be impeded by any obstruction above the stack that decreases the vertical efflux velocity below that which would occur in the absence of such obstruction.

13. All stacks on site that are designed for exhausts that have an air flow rate of greater than 10,000 cubic metres per hour ~~or more~~ shall be fitted with sampling sockets that comply with ISO Method 9096:1992 (e), USEPA Method 1 of AS 4323.1 1995, or another method satisfactory to the Consent Authority, and safe and appropriate access shall be provided to the sampling plane.

Emission Limits

14. The emissions of the contaminants discharged from the cement kiln baghouse shall not exceed the limits shown in Tables 1 and 2. Compliance with these emission limits shall be determined according to the monitoring required in conditions 18 and 21

(a) Compliance with the limits shown in Tables 1 and 2 shall apply at all times the cement plant is operating except for a period of 16 hours when the plant is being started up from cold. During the 16-hour start up period the limits on sulphur dioxide, carbon monoxide and nitrogen oxides shall not apply.

(b) When the plant is being started up from cold the Consent Holder shall minimise the emission of sulphur dioxide, carbon monoxide and nitrogen oxides as far as practicable.

(c) The maximum values shown in Table 1 shall be met on a daily average basis.

(d) During any rolling 24 hour period not more than one half hourly period shall exceed the maximum values shown in Table 1 by more than 50 percent. For the purpose of this limit half hourly periods shall commence on the hour and on the half hour.

(e) The averaging period that will apply to emission limits shown in Table 2 will be the greater of 1 hour and the minimum sampling period specified in the appropriate test method.

(f) For the purposes of this condition heavy metals are
- (i) Antimony
- (ii) Arsenic
- (iii) Cadmium
- (iv) Chromium
- (v) Cobalt

(vi) Copper
(vii) Lead
(viii) Manganese
(ix) Mercury
(x) Nickel
(xi) Thallium
(xii) Vanadium

Table 1: Cement Kiln Emission Limits for Continuously Monitored Contaminants

Contaminant	~~Maximum Concentration (milligrams per cubic metre, corrected to 0 degrees Celsius, 101.3 kPa, 10% oxygen and a dry gas basis).~~	Daily Maximum mass emission (kilograms per hour)
TSP	~~10~~	3.75
NO_x (as NO_2)	~~500~~	135
SO_2	~~400~~	108
CO	~~500~~	180
Ammonia	~~35~~	10

Table 2: Cement Kiln Emission Limits of Contaminants Measured Annually

Contaminant	Maximum mass emission (kilograms per hour)
Heavy Metals (total including Mercury and Cadmium)	0.15
Mercury	0.002
Cadmium	0.001
Dioxins and Furans	$8x10^{-8}$ kg (TEQ/hr)
Hydrogen Chloride	7.5

15. The emissions of total particulates from the cement mill baghouse shall not shall not exceed a daily average maximum of ~~concentration of 10 milligrams per cubic metre (corrected to 0 degrees Celsius, 101.3 kPa, 10% oxygen and a dry gas basis) and~~ 4.3 kilograms per hour. Compliance with this emission limit shall be determined according to the monitoring required in conditions 19 and 22.
    (a) The maximum value of 4.3 kilograms per hour shall be met on a daily average basis.
    (b) During any rolling 24 hour period not more than one half hourly period shall exceed the daily average maximum value of 4.3 kilograms per hour by more than 50 percent.

16. The emissions of total particulates from all baghouses on site that are designed for exhausts that have an air flow rate of 7000 cubic metres per hour or more, except for the main cement kiln baghouse and the cement mill baghouse, shall not exceed a maximum concentration of 20 milligrams per cubic metre (dry gas, 273°K,

101.3 kPa~~appa~~). ~~Compliance with this emission limit shall be determined according to the monitoring required in condition 22.~~

?. The emissions of sulphur dioxide from the cement kiln baghouse shall not exceed a maximum monthly average mass emission of 62 kilograms per hour.

Emission Monitoring

17. All continuous monitoring equipment shall be operated, maintained and calibrated in accordance with the manufacturers specifications and the requirements of the specified monitoring methods.

18. The Consent Holder shall install, calibrate, maintain and operate a continuous emission monitoring system for measuring the contaminants discharged from the cement kiln baghouse and the cement kiln baghouse exhaust gas physical characteristics.
    (a) The continuous emissions monitoring system shall be able to continuously measure and record the parameters shown in Table 1. The measurements shall be in accordance with the methods shown in Table 3. Where the specified method is unavailable or no longer appropriate an equivalent method may be used to the satisfaction of the Consent Authority.

Table 3: Continuous Monitoring Methods

Contaminant	Method
Total Particulates	ISO 10155 Stationary source emissions -- Automated monitoring of mass concentrations of particles -- Performance characteristics, test methods and specifications. Or US EPA Method PS11 - Specifications and Test Procedures for Particulate Matter Continuous Emission Monitoring Systems at Stationary Source
Sulphur dioxide	ISO 7935 Stationary source emissions -- Determination of the mass concentration of sulfur dioxide -- Performance characteristics of automated measuring methods (available in English only) or US EPA CEMS 2 Performance Specification 2 - Specifications And Test Procedures For SO_2 And NOx Continuous Emission Monitoring Systems In Stationary Sources
Nitrogen oxides	ISO 10849 Stationary source emissions -- Determination of the mass concentration of nitrogen oxides -- Performance characteristics of automated measuring systems (available in English only) Or US EPA CEMS 2 Performance Specification 2 - Specifications And Test Procedures For SO_2 And NOx Continuous Emission Monitoring Systems In Stationary Sources
Carbon monoxide	ISO 12039 Stationary source emissions -- Determination of carbon monoxide, carbon dioxide and oxygen -- Performance characteristics and

Contaminant	Method
	calibration of automated measuring systems Or US EPA CEMS 4 - Specifications And Test Procedures For Carbon Monoxide Continuous Emission Monitoring Systems In Stationary Sources Or US EPA CEMS 4A Specifications And Test Procedures For Carbon Monoxide Continuous Emission Monitoring Systems In Stationary Sources
Volatile organic compounds	US EPA CEMS 8 Performance Specifications For Volatile Organic Compound Continuous Emission Monitoring Systems In Stationary Sources
Ammonia	Hybrid~~e~~ test method ba~~B~~sed on CEMS 2 or US EPA Test Method 320 Measurement Of Vapour Phase Organic And Inorganic Emissions By Extractive Fourier Transform Infrared (FTIR) Spectroscopy
Exhaust gas temperature	ISO 10396 Stationary source emissions -- Sampling for the automated determination of gas emission concentrations for permanently-installed monitoring systems Or US EPA CEMS 6 - Specifications And Test Procedures For Continuous Emission Rate Monitoring Systems In Stationary Sources
Exhaust gas volumetric flow rate, or exhaust gas exit velocity	ISO 10396 Stationary source emissions -- Sampling for the automated determination of gas emission concentrations for permanently-installed monitoring systems Or US EPA CEMS 6 - Specifications And Test Procedures For Continuous Emission Rate Monitoring Systems In Stationary Sources
Exhaust gas moisture content	ISO 10396 Stationary source emissions -- Sampling for the automated determination of gas emission concentrations for permanently-installed monitoring systems Or US EPA CEMS 6 - - Specifications And Test Procedures For Continuous Emission Rate Monitoring Systems In Stationary Sources
Exhaust gas oxygen content	ISO 10396 Stationary source emissions -- Sampling for the automated determination of gas emission concentrations for permanently-installed monitoring systems Or US EPA CEMS 3 - Specifications And Test Procedures For O_2 And CO_2 Continuous Emission Monitoring Systems In Stationary Sources

(b) The continuous emissions monitoring system shall be operated and the data recorded during all periods of operation of the kiln except for continuous emissions monitoring system breakdowns and repairs.

(c) The data collected by the continuous emissions monitoring system shall be used to calculate compliance with the emission standards specified in condition 14.

19. The Consent Holder shall install, calibrate, maintain and operate a continuous emission monitoring system for measuring the contaminants discharged from the cement mill baghouse and the cement mill baghouse exhaust gas physical characteristics.

(a) The continuous emissions monitoring system shall be able to continuously measure and record total particulate. The measurements of total particulates shall be in accordance with a method of satisfaction to the Consent Authority.

(b) The continuous emissions monitoring system shall be operated and the data recorded during all periods of operation of the kiln except for continuous emissions monitoring system breakdowns and repairs.

(c) The data collected by the continuous emissions monitoring system shall be used to calculate compliance with the emission standards specified in condition 15.

20. The Consent Holder shall investigate continuous emissions monitoring methods for measuring PM_{10}. If and when methods become available that are reliable and practical the Consent Holder shall install, calibrate and maintain such a system in the cement kiln and cement mill baghouse stacks.

21. The Consent Holder shall commission an IANZ accredited stack testing professional or equivalent approved by the Consent Authority ~~commission an independent accredited contractor~~ to measure the discharges from the cement kiln baghouse exhaust within six months of the commencement of cement manufacture and thereafter once every 12 months. Each measurement shall constitute at least three individual tests for each contaminant. The results of the measurements shall be reported as the average of the three individual tests for each contaminant. The contaminants to be tested and the methods to be used are shown in Table 4. Where the specified method is unavailable or no longer appropriate an equivalent method may be used to the satisfaction of the Consent Authority. The plant operating parameters such as production rate and fuel mix shall be recorded during the testing procedure.

Table 4: Cement Kiln Baghouse Exhaust Annual Emissions Monitoring

Contaminant	Method
Total Particulate	US EPA Method 5 - Determination Of Particulate Matter Emissions From Stationary Sources Or ISO 9096:1992 (E) Stationary Source Emissions. Determination of concentration and mass flow rate of particulate material in gas-carrying ducts – manual gravimetric method" and Equivalent Methods.
PM_{10} and $PM_{2.5}$	US EPA Conditional Test Method 40 –Method For The Determination Of PM10 And PM2.5

Contaminant	Method
	Emissions (Constant Sampling Rate Procedures)
Sulphur dioxide	US EPA Method 6 - Determination Of Sulphur Dioxide Emissions From Stationary Sources, or US EPA Method 6A - Determination Of Sulfur Dioxide, Moisture, And Carbon Dioxide From Fossil Fuel Combustion Sources Or US EPA Method 6B - Determination Of Sulfur Dioxide And Carbon Dioxide Daily Average Emissions From Fossil Fuel Combustion Sources
Nitrogen oxides	US EPA Method 7– "Determination of nitrogen oxide emissions from stationary sources
Heavy Metals	US EPA Method 29 Metals Emissions from Stationary Sources
Dioxins and Furans	US EPA Method 23 Dioxin and Furan
Hydrogen Chloride	US EPA Method 26 Hydrogen Chloride, Halides, Halogens
Ammonia	US EPA CTM 027 Procedure For Collection And Analysis Of Ammonia In Stationary Sources
Volatile organic compounds	USEPA Method 18 Measurement of gaseous organic compound emissions by gas chromatography or US EPA Method 25A - Determination of Total Gaseous Organic Concentration using a Flame Ionization Analyzer
Benzene	US EPA Method 18 Measurement of gaseous organic compound emissions by gas chromatography

22. The Consent Holder shall commission an IANZ accredited stack testing professional or equivalent approved by the Consent Authority, to measure the discharges of total particulates, PM10 and PM2.5 from the cement mill baghouse exhaust six months after the commencement of cement manufacture and once every 12 months thereafter. Each measurement shall constitute at least three individual tests for each contaminant. The results of the measurements shall be reported as the average of the three individual tests for each contaminant. The methods to be used shall be" ISO 9096:1992 (E) Stationary Source Emissions. Determination of concentration and mass flow rate of particulate material in gas-carrying ducts – manual gravimetric method" and Equivalent Method US EPA Conditional Test Method 40 –Method For The Determination Of PM10 And PM2.5 Emissions (Constant Sampling Rate Procedures). Where the specified method is unavailable or no longer appropriate an equivalent method may be used to the satisfaction of the Consent Authority. The tests shall be undertaken as far as practical when the cement mill is operating at maximum throughput. The cement mill throughput shall be recorded during the testing procedure.

23. At least once every 5 years, the Consent Holder shall measure the discharge of total particulates from each baghouse on site, other than the cement kiln baghouse and the cement mill baghouse, provided that the bag house has its own separate discharge stack and its design exhaust gas flow rate is greater than 10,000 cubic meters per hour. The results of this monitoring shall be compared to the emission

concentration limit set in Condition 16. The Consent Holder may choose to test all such bag houses in one year or choose to test them on a revolving basis providing that each bag house is tested at least once every five years. ~~The Consent Holder shall measure the discharges of total particulates from every baghouse on site that is designed for an exhaust that has an air flow rate of 10,000 cubic metres or more, except the cement kiln baghouse and cement mill baghouse, once every five years. The Consent Holder may choose to test all of the bag houses, except the cement kiln baghouse and cement mill baghouse, in one year or choose to test them on a revolving basis providing that each bag house is tested at least once every five years.~~

Ambient Monitoring

24. All continuous ambient monitoring equipment shall be operated, maintained and calibrated in accordance with the manufacturers specifications and the requirements of the specified monitoring methods.

25. All ambient monitoring sites shall be sited in accordance with Australian Standard AS 2922 1987 as far as possible and to the Consent Authorities satisfaction. When the site location does not meet the standard requirements, the non-conformance with the standard shall be recorded in the site information.

26. The Consent Holder shall commission an independent accredited contractor to continuously measure and record the concentration of PM_{10} in ambient air at one location using a continuous monitor that is able to measure and record 1 hour average concentrations. The monitor shall use a continuous method that is recommended by the Ministry for the Environment as suitable to determine compliance with the National Environmental Standard for ambient PM_{10} concentrations.
    (a) The monitoring shall take place at or about the following location and as shown on the map attached as appendix 1 to this consent.
        (i) The vicinity of Weston Primary School
    (b) The monitoring site shall be to the satisfaction of the Consent Authority.
    (c) The PM_{10} monitoring shall commence at least 12 months prior to the commencement of cement manufacture.
    ~~(d) Notwithstanding Condition 14, emissions from the Consent Holder's premises shall not significantly contribute to, nor cause the monitored ground level concentrations of particulate material less than 10 microns in aerodynamic diameter to exceed 35 micrograms per cubic metre of air expressed as a 24 hour average at the monitoring location required under condition 26 (a) of this consent.~~

27. The Consent Holder shall continuously measure and record the concentration of PM_{10} in ambient air at one location using a continuous monitor that is able to measure and record 1 hour concentrations. The monitor shall use a continuous method that is recommended by the Ministry for the Environment as suitable to determine compliance with the National Environmental Standard for ambient PM_{10} concentrations.

(a) The PM_{10} monitoring shall take place on the western side of Weston Ngapara Road opposite the main cement plant site where atmospheric dispersion modelling predicted the highest offsite concentrations are likely to occur.

(b) The monitoring site shall be to the satisfaction of the Consent Authority.

(c) Within one month of each anniversary of the commencement of cement manufacture, the Consent Holder may, with the written agreement of the Consent Authority discontinue the PM_{10} monitoring required by this condition, if monitoring indicates that ambient PM_{10} concentrations have not exceeded ~~35~~50 micrograms per cubic metre, or if it can be confirmed that any exceedance of ~~35~~ 50 micrograms per cubic metre can be attributed to a source or sources other than the activities of the Consent Holder.

(d) Notwithstanding Condition 14, emissions from the Consent Holder's premises shall not significantly contribute to, nor cause the ground level concentrations of particulate material less than 10 microns in aerodynamic diameter to exceed 50 micrograms per cubic metre of air expressed as a 24 hour average at the monitoring station required under condition 27(a) of this consent

28. The Consent Holder shall commission an independent accredited contractor to continuously measure and record the concentration of sulphur dioxide in ambient air at one location using a continuous monitor that is able to measure and record 1 hour average concentrations. The monitoring method shall be "AS 3580.4.1:1990, Methods for sampling and analysis of ambient air – Determination of sulphur dioxide – Direct-reading instrumental method or another equivalent method". Where the specified method is unavailable or no longer appropriate an equivalent method may be used to the satisfaction of the Consent Authority.

(a) The monitoring shall take place at or about the following location and as shown on the map attached as appendix 1 to this consent.

(i) The vicinity of Weston Primary School

(b) The monitoring sites shall be to the satisfaction of the Consent Authority.

(c) The sulphur dioxide monitoring in the vicinity of Weston Primary School shall commence at least 12 months prior to the commencement of cement manufacture.

(d) Within one month of each anniversary of the commencement of cement manufacture, the Consent Holder may, with the written agreement of the Consent Authority discontinue the sulphur dioxide monitoring required by this condition, at Weston School if monitoring indicates that ambient sulphur dioxide concentrations have not exceeded the Otago Goal Levels of 230 micrograms per cubic metre (1 hour average) ~~and World Health Organisation Guideline of 20 micrograms per cubic metre (24 hour average)~~ in the preceding 12 month period at that site, or if it can be confirmed that any exceedance of these thresholds can be attributed to a source or sources other than the activities of the Consent Holder.

~~(e) Notwithstanding Condition 14, emissions from the Consent Holder's premises shall not significantly contribute to, nor cause the monitored~~

~~ground level concentrations of sulphur dioxide to exceed 350 micrograms per cubic metre of air expressed as a one hour average at or beyond the property boundary of the Consent Holders premises.~~

29. The Consent Holder shall continuously measure and record the concentration of sulphur dioxide in ambient air at one location using a continuous monitor that is able to measure and record 1 hour average concentrations. The monitoring method shall be "AS 3580.4.1:1990, Methods for sampling and analysis of ambient air – Determination of sulphur dioxide – Direct-reading instrumental method or another equivalent method". Where the specified method is unavailable or no longer appropriate an equivalent method may be used to the satisfaction of the Consent Authority.
    (a) The monitoring shall take place at or about the following locations and as shown on the map attached as appendix 1 to this consent.
        (i) On the western side of Weston Ngapara Road opposite the main cement plant site where atmospheric dispersion modelling predicted the highest offsite concentrations are likely to occur.
    (b) The monitoring sites shall be to the satisfaction of the Consent Authority.
    (c) The sulphur dioxide monitoring on the western side of Weston Ngapara Road opposite the main cement plant site shall commence at or before the commencement of cement manufacture.
    (d) Within one month of each anniversary of the commencement of cement manufacture, the Consent Holder may, with the written agreement of the Consent Authority discontinue the sulphur dioxide monitoring required by this condition, on the western side of Weston Ngapara Road opposite the main cement plant site, if monitoring indicates that ambient sulphur dioxide concentrations have not exceeded the Otago Goal Level of 230 micrograms per cubic metre (1 hour average) ~~and World Health Organisation Guideline of 20 micrograms per cubic metre (24 hour average)~~ in the preceding 12 month period at that site, or if it can be confirmed that any exceedance of the Otago Goal Levels can be attributed to a source or sources other than the activities of the Consent Holder.
    (e) Notwithstanding Condition 14, emissions from the Consent Holder's premises shall not significantly contribute to, nor cause the monitored ground level concentrations of sulphur dioxide to exceed 350 micrograms per cubic metre of air expressed as a one hour average at or beyond the property boundary of the Consent Holders premises.

30. The Consent Holder shall monitor the ambient concentrations of sulphur dioxide at three sites using passive sampling techniques that provide monthly average concentrations.
    (a) The monitoring shall take place at or about the following locations and as shown on the map attached as appendix 1 to this consent.
        (i) The vicinity of Weston Primary School
        (ii) On the western side of Weston Ngapara Road opposite the main cement plant site where atmospheric dispersion modelling predicted the highest offsite concentrations are likely to occur.

(iii) On the top of the escarpment to the north of the main cement plant site.

(b) The monitoring sites shall be to the satisfaction of the Consent Authority.

(c) The passive sampling of sulphur dioxide shall commence at or before the commencement of cement manufacture for the site required in (a)(iii) and at least three months prior to the cessation of continuous monitoring at either of the sites required in a(i) and (ii). ~~The passive sampling of sulphur dioxide shall commence at or before the commencement of cement manufacture.~~

(d) Within one month of each anniversary of the commencement of cement manufacture, the Consent Holder may, with the written agreement of the Consent Authority discontinue the sulphur dioxide monitoring required by this condition, if monitoring indicates that ambient sulphur dioxide concentrations have not exceeded 20 micrograms per cubic metre (monthly average) in the preceding 12 month period at that site, or if it can be confirmed that any exceedance of 20 micrograms per cubic metre (monthly average) can be attributed to a source or sources other than the activities of the Consent Holder.

31. The Consent Holder shall monitor dust deposition rates on a 30 day average basis at a site on the western side of Weston Ngapara Road opposite the main cement plant site during the construction of the cement manufacturing plant. The monitoring shall begin at or before site preparation work begins on the cement manufacturing plant site and shall continue until cement manufacturing has commenced and all site development works are complete. The monitoring method used shall be in accordance with ISO Standard ISO/DIS 4222.2 ("Air Quality Measurement of Atmospheric Dustfall – Horizontal Deposit Gauge Method") 1980. Where the specified method is unavailable or no longer appropriate an equivalent method may be used to the satisfaction of the Consent Authority.

32. The consent holder shall monitor background dust deposition rates at 30 day intervals at two sites in accordance with draft ISO Standard ISO/SIS 4222.2 ("Air Quality Measurement of Atmospheric Dustfall – Horizontal Deposit Gauge Method" 1982). Where the specified method is unavailable or no longer appropriate an equivalent method may be used to the satisfaction of the Consent Authority. Total dust and insoluble dust shall be reported for each site. The background monitors shall be located in Ngapara and Weston at locations that are sufficiently removed from the quarry activities so that they will not be affected by emissions from the quarry. The monitoring required in this condition is also required by consent numbers 2007.187 and 2007.200.

33. If any insoluble dust deposition measurements exceed 4 grams per square metre per thirty days above dust levels measured at the background sites during the same monitoring period, the Consent Holder shall undertake an immediate review of dust mitigation methods, unless it can be demonstrated that sources other than the plant have contributed the majority of the deposition. This review shall

establish the cause of the high results and recommend measures to improve the level of dust mitigation. A report outlining the findings of this review shall be provided to the Consent Authority within 1 month of the high result being received.

?. Vegetation monitoring for sulphur dioxide effects shall be undertaken at the following locations:

a) The exotic species on neighbouring land immediately north of the application site;

b) On trees near the existing limeworks; and

c) On native vegetation on the adjacent escarpment.

This monitoring shall be undertaken 12 months after the commencement of manufacturing and thereafter on a 5 yearly basis.

Meteorological Monitoring

34. The Consent Holder shall commission an independent accredited contractor to install and operate a meteorological data collection station. The station shall use a mast that is at least six metres high.

(a) At a minimum the meteorological data collection station shall electronically monitor using an automated logging system capable of hourly resolution, the following parameters:

(i) Wind speed (0 – 55 metres per second ±2 percent)

(ii) Wind direction (0 degrees- 360 degrees , ± 5 degrees, referenced to True)

(iii) Air temperature (-30 degrees Celsius – 70 degrees Celsius ± 0.3 degrees Celsius)

(iv) Humidity (0 percent -100 percent relative humidity ± 5 percent.

(v) Atmospheric pressure (500 hectopascals-1100 hectopascals ±2 hectopascals)

(b) The meteorological data collection station shall be sited at the following location:

(i) At or about the vicinity of Weston School

(c) The meteorological data collection station shall begin operation at least 12 months prior to the commencement of cement manufacture.

35. The Consent Holder shall operate a meteorological data collection station. The station shall use a mast that is at least thirty metres high.

(a) At a minimum the meteorological data collection station shall electronically monitor using an automated logging system capable of hourly resolution, the following parameters:

(i) (Wind speed (0 – 55 metres per second ±2 percent)

(ii) Wind direction (0 degrees- 360 degrees , ± 5 degrees, referenced to True)

(iii) Air temperature (-30 degrees Celsius - 70degrees Celsius ± 0.3 degrees Celsius)

(iv) Humidity (0 percent -100 percent relative humidity ± 5 percent).

(v) Atmospheric pressure (500 hectopascals-1100 hectopascals ±2 hectopascals)

(b) Temperature profile (at two heights – 10 metres and 30 metres).

The meteorological data collection station shall be sited at the following locations

(i) Main cement plant site

(c) The meteorological data collection station shall begin operation at least 12 months prior to the commencement of cement manufacture.

Environmental Management Plan (Air)[1]

36. The Consent Holder shall prepare and implement an Environmental Management Plan that includes management methods to minimise discharges to air. The environmental management plan shall be prepared and presented to the Consent Authority prior to the commencement of construction. The environmental management plan shall be reviewed annually thereafter. The matters to be included in the environmental management plan shall include but not be limited to the following:

(a) A description of the discharges to air on site.

(b) The methods undertaken to prevent dust being generated within the site during construction and operation of the plant. These shall include all of the methods described in the application relating to control of dust from the concrete batching plant, excavation, construction activities, yard areas, haul roads, stockpiles and vehicles.

(c) The methods undertaken to prevent odours being generated from the on site waste water treatment plant.

(d) The operating and maintenance requirements for the manufacturing plant, the emissions control equipment and any ancillary equipment on site such as the emergency generator.

(e) A contingency plan for the breakdown of any section of the manufacturing plant and emissions control equipment.

(f) A contingency plan for the control of any emergency release of contaminants from the plant, including procedures for notification of the consent authority and remediation and mitigation plans.

(g) A start up and shut down plan for the plant.

(h) A method for recording and responding to complaints from the public.

(i) A system for recording all maintenance undertaken on the manufacturing plant and emissions control equipment.

(j) A description of the emissions monitoring required and how it is to be carried out, the methods to be used, and routine calibration and maintenance plans.

(k) A description of the ambient air quality, deposition and meteorological monitoring required and how it is to be carried out including a description

[1] Note: This Environmental Management Plan could be consolidated with all other Environmental Management Plans required by Regional Consents, for each site, provided that all matters required under each plan are addressed.

of the monitoring sites, routine calibration and maintenance plans, and the methods and equipment used.

(l) A description of the reporting requirements and how they are to be carried out.

(m) Training of employees and contractors to make them aware of the requirements of the environmental management plan.

(n) Assignment of responsibility for reviewing and implementing the plan.

Reporting Requirements

37. The Consent Holder shall notify the Consent Authority at least five working days prior to any cold start of the cement manufacturing plant of its intention to undertake a cold start. The Consent Holder shall advise the Consent Authority of the date and time the plant will be started and the name and contact details of the person in charge of the procedure.

38. The Consent Holder shall notify the Consent Authority as soon as practicable of any plant malfunction or breakdown that results in an abnormal discharge. The Consent Holder shall advise the Consent Authority within 72 hours in writing of the malfunction, the causes of the plant malfunction or breakdown and the repairs and remediation that were undertaken or are being undertaken to prevent a repeat of the malfunction or breakdown.

~~39. The Consent Holder shall notify the Consent Authority as soon as practicable of any emergency discharge that is unauthorised by this consent. The Consent Holder shall advise the Consent Authority within 72 hours in writing of the matter cause of the emergency discharge and the steps taken or being taken to effectively control or prevent such escape.~~

~~40. The Consent Holder shall submit the results of all ambient air and discharge monitoring to the Consent Authority in electronic and written format by not later than the last day of each calendar month, incorporating the results of all monitoring received in the previous month, undertaken in accordance with the conditions of this consent.~~

41. The Consent Holder shall produce an annual summary report by 31 March each year following the commencement of this consent, on all the discharge monitoring and ambient air monitoring required by the conditions of this consent for the previous year. The report shall include an analysis of the monitoring data in relation to compliance with discharge limits and ambient air quality guidelines and standards, taking into consideration plant production and meteorological conditions during the monitoring period. The analysis and presentation of the data shall be in accordance with the Ministry for the Environments "Good Practice Guide for Air Quality Monitoring and Data Management" December 2000.

42. (a) Within 18 months of the commencement of cement manufacture and at five yearly intervals thereafter, the consent holder shall conduct a review of:
    (i) Technology for the control of emissions to air from the cement manufacturing plant.
    (ii) Technology for the continuous measurement of PM_{10} discharges.
    (iii) The results of monitoring required by the conditions of this consent.
    (iv) The ambient monitoring programme.
    (v) Any relevant guidelines for discharges to air.
    (vi) Any relevant ambient air quality standards and guidelines.

    (b) As part of this review, the consent holder shall recommend any practicable reductions in emissions to the environment and any changes required to the ambient monitoring programme.
    (c) The results of this review shall be provided to the Consent Authority.

Review Conditions

43. The Consent Authority may, in accordance with sections 128 and 129 of the Resource Management Act 1991, serve notice on the Consent Holder of its intention to review the conditions of this consent within six months of the receipt of the ambient monitoring results required under conditions 24 - 35 of this consent, for the purpose of assessing the need to adjust the discharge limits contained in the conditions of this consent if the results presented in the report indicate that the ambient levels of contaminants are exceeded in any of the following situations:
    (a) Any 1-hour sulphur dioxide measurements taken over a calendar year as required by monitoring conditions 28 and 29 exceed 450 micrograms per cubic metre that can be attributed to the Consent Holder's activities.
    (b) More than three 1-hour sulphur dioxide measurements taken over a calendar year as required by monitoring conditions 28 and 29 exceed 350 micrograms per cubic metre that can be attributed to the Consent Holder's activities.
    (c) Any single 24 hour PM10 measurement taken in a calendar year as required by monitoring conditions 26 and 27 exceeds 50 micrograms per cubic metre that can be attributed to the Consent Holder's activities.
    (d) More than one 24 hour PM10 measurement taken in a calendar year as required by monitoring conditions 26 and 27 exceeds 35 micrograms per cubic metre that can be attributed to the Consent Holder's activities.

44. The Consent Authority may, in accordance with sections 128 and 129 of the Resource Management Act 1991, serve notice on the Consent Holder of its intention to review the conditions of this consent within six months of the anniversary of the commencement of this consent, and every two years following that period, for the purpose of:
    (a) Ensuring the conditions of this consent are consistent with any National Environmental Standards;

(b) Determining whether the conditions of this consent are adequate to deal with any adverse effects on the environment, which may arise from the exercise of the consent and which it is appropriate to deal with at a later stage, or which become evident after the date of commencement of the consent;

(c) Determining whether the conditions of this consent are appropriate based on the results of the reviews undertaken pursuant to conditions 41 and 42.

45. Pursuant to Section 125(1) of the Act this resource consent shall lapse on the expiry of seven years after the date of commencement of the consents unless the consents are given effect to before the end of that period or upon application in terms of Section 125(1)(b) of the Act, the Consent Authority grant a longer period of time.

Appendix 1: Locations for ambient monitoring