

Compliance Monitoring Report

Consent Holder	Ravensdown Fertiliser Co-operative Limited	Consent No	DP050561Ab
Client Address	Private Bag 6012 Hawke's Bay Mail Centre NAPIER 4142	Site Address	808 Waitangi Road, Awatoto
Contact Name	Helen Hurring	Phone	(06) 834 1769
Job Code	456007	Mobile	021 900 457
		Consent Type	Discharge Permit

Activity Description:

To discharge contaminants into the air from the operation of the company's fertiliser manufacturing plant at Awatoto, including the following processes:
 The manufacture of sulphuric acid,
 The manufacture of superphosphate fertiliser,
 The storage, blending and dispatch of bulk and bagged fertilisers and sulphuric acid,
 The receipt and storage (inside and outside) of raw materials and imported fertiliser,
 General site operations

02-Apr-14	Monitoring Report Sent	Officer	Barbara McKenzie
05-Nov-14	Incident Inspection	Officer	Andrew Gass
12-Jan-15	Monitoring Inspection	Officer	Andrew Gass
10-Feb-15	Monitoring Inspection	Officer	Andrew Gass
01-Apr-15	Monitoring Inspection	Officer	Andrew Gass
21-Apr-15	Monitoring Report Sent	Officer	Barbara McKenzie

2014-2015 Statement of Compliance and Overall Grades:

Grade Date	21-Apr-15
Environmental Grade	Non Compliance
Technical Grade	Non Compliance

Overall Comments:

This report applies to the period 1 April 2014 to 1 April 2015.

The non-compliance relates to conditions 6, 7, 8, 34 & 37. Sulphur was stored outside during the monitoring period. Only phosphate rock is consented for outside storage. However, the situation was such that outside sulphur storage could not be avoided and the control measures put in place were sufficient to avoid any discharge to air.

The 7-day average concentration of fluoride at the RFC NW monitoring location was exceeded on two occasions:

17 December 2014 = 5.52µg/m³ (minor breach as result rounds to 5.5 - 1dp - as per Condition 34);

14 January 2015 = 6.93µg/m³.

A second monitor has been installed at this site due to erratic readings being recorded recently to ensure the results are real and not due to instrument error.

There has been two occasions during the monitoring period where pH has been less than 2.7 from the den stacks:

On 29/5/14 side 1 had a pH of 2.58.

On 5/6/14, side 1 had a pH of 2.69 (minor breach as result rounds to 2.7 - 1dp - as per Condition 37).

Previous Statement of Compliance and Overall Grades:

Grade Date 01-Apr-14
Environmental Grade Non Compliance
Technical Grade Compliance

Overall Comments:

This report applies to the period between 28 February 2013 and 1 April 2014.

The non-compliance relates to condition 37, the Hygiene stack pH was less than 2.7 during February 2013. pH for all the stack testing was above this, during the rest of the reporting period.

Refer to back page for grading information

Condition No.	Type of Condition	Consent Condition and Compliance Assessment
1	Technical	All works and structures relating to this resource consent shall be designed and constructed to conform to the best engineering practices and at all times maintained to a safe and serviceable standard.
	Compliance	25-Mar-14 Compliance based on as-built plans, producer statement and visual observations on site. Major upgrades have recently taken place.
	Compliance	14-Apr-15 Works and structures were maintained. Ongoing upgrades continue to take place. At the next shutdown period, the burner and two molten sulphur tanks will be replaced.
2	Technical	The consent holder shall undertake all operations in accordance with any drawings, specifications, statements of intent and other information supplied as part of the application for this resource consent. If a conflict arises between any conditions of this consent and the application, the conditions of this consent will prevail.
	Compliance	25-Mar-14 Compliance based on as-built plans, producer statement and visual observations on site.
	Compliance	14-Apr-15 Compliance based on as-built plans, producer statement and visual observations on site.
3	Environmental	There shall be no discharge of particulate matter (including dust) that causes an offensive or objectionable effect beyond the boundary of the site. Compliance with Conditions 6 to 13 does not automatically result in compliance with this condition.
	Compliance	25-Mar-14 No complaints have been received during the reporting period. The Council Officer has not observed any offensive or objectionable particulate matter during the reporting period.
	Compliance	14-Apr-15 No complaints relating to particulate matter have been received during the monitoring period.
4	Environmental	There shall be no discharge of odour that causes an offensive or objectionable effect beyond the boundary of the site.

Condition No.	Type of Condition	Consent Condition and Compliance Assessment
	Compliance	25-Mar-14 No complaints have been received during the reporting period. The Council Officer has not detected any offensive or objectionable odours beyond the boundary of the site during the reporting period.
	Compliance	14-Apr-15 No confirmed complaints have been received during the monitoring period relating to offensive or objectionable odour from this site. No offensive or objectionable odours have been detected at the time of any site visits.
5	Environmental	Notwithstanding any other condition of this consent, there shall be no noxious or dangerous levels of gases, airborne liquid or other airborne contaminants beyond the legal boundary of the site, that are likely to cause adverse effects on human health, ecosystems or property. [Note: for the purpose of this condition the term 'property' shall mean 'land and all assets on it'].
	Compliance	25-Mar-14 No complaints have been received for this site during the reporting period.
	Compliance	14-Apr-15 No confirmed complaints of noxious or dangerous levels of gases have been received during the monitoring period. One complaint was received during the cold start-up in November 2014. This was unconfirmed and the various monitoring did not show any issues.
6	Environmental	All bulk raw materials stored on site shall be kept in enclosed buildings, with the exception of phosphate rock which must otherwise be securely contained to minimise particulate being discharged into air.
	Compliance	25-Mar-14 All bulk raw materials stored on site have been stored in buildings.
	Non Compliance	14-Apr-15 No phosphate rock has been stored outside during the monitoring period. There was one instance where a sulphur shipment was stored outside for a short time during the monitoring period due to the high water content in the shipment. After viewing the stockpile and measures in place to prevent any particulate discharges to air, I was kept updated as to the stockpile's status and timeframes for transfer into the store.
7	Environmental	The consent holder shall use its best endeavours to avoid outside storage of phosphate rock. Any outside storage shall be undertaken in accordance with the Investigation and Management Plan, as required by Condition 67 of this consent. Outside storage, excluding the management of spills, shall only be undertaken in the area to the south of the Acid Plant.
	Compliance	25-Mar-14 No outside storage of phosphate rock has occurred.

Condition No.	Type of Condition	Consent Condition and Compliance Assessment
	Non Compliance	<p>14-Apr-15</p> <p>No phosphate rock has been stored outside during the monitoring period.</p> <p>A part shipment of sulphur has been stored outside during the monitoring period for a short time due to the high water content.</p> <p>This was stored near to the dispatch sheds where it was sheltered from the wind and water draining from the pile could be captured.</p> <p>While technically non-compliant, the measures in place to prevent particulate discharges were adequate for the short period of time it was stored outside.</p>
8	Technical	<p>At least 10 working days prior to the use of outside product storage the Consent Holder shall notify the Council that product shipments will be arriving which cannot be stored inside. Notification shall include the following:</p> <p>a. A summary of why alternative covered storage is not possible; and</p> <p>b. The product type to be stored outside; and</p> <p>c. The likely volume of product to be stored outside; and</p> <p>d. The estimated date of arrival and the time it will take to place product at the outside location; and</p> <p>e. Estimated duration that the product will be stored outside.</p>
	Compliance	<p>25-Mar-14</p> <p>No outside storage has taken place.</p>
	Non Compliance	<p>14-Apr-15</p> <p>No phosphate rock has been stored outside during the monitoring period.</p> <p>Notification of the sulphur shipment stored outside was received as soon as it became apparent it could not be stored inside. Relevant information was provided with this notification and a site visit undertaken to observe the sulphur stockpile.</p> <p>No complaints were received for this site during this time.</p>
9	Environmental	<p>No outside unloading, pile forming or loading shall occur when average hourly wind speed exceeds 5 metres per second (m/s). The wind speed shall be determined by an onsite meteorological station in accordance with Condition 42 of this consent.</p>
	Not applicable	<p>25-Mar-14</p> <p>This condition is not applicable as no outside storage has taken place.</p>
	Compliance	<p>14-Apr-15</p> <p>No phosphate rock was stored outside during the monitoring period.</p> <p>It is understood the sulphur stockpile was loaded into the store under appropriate weather conditions. Two weather stations are maintained on site.</p>
10	Environmental	<p>The consent holder shall carry out the suppression of dust with use of water through various methods that include, but are not limited to, spraying with</p>

Condition No.	Type of Condition	Consent Condition and Compliance Assessment
		water cart or sprinkler system to minimise the discharge of all visible dust beyond the site boundary, particularly during the loading, transfer and stockpiling of product. The control of dust discharges from stockpile areas shall include night-time and weekend hours.
	Compliance	25-Mar-14 There has been no outside storage. Rock and product are stored inside to minimise dust. The roadways are swept monthly to minimise dust buildup.
	Compliance	14-Apr-15 There has been no outside storage of phosphate rock. Some sulphur has been stored outside due to its high water content. This was stored in a sheltered location and moved inside as soon as it was dry enough to be moved. No dust issues were identified after observation of the pile and no complaints received. The roadways are swept at least monthly and more frequently if required, to minimise dust build-up.
11	Environmental	Notwithstanding Condition 10 the consent holder shall establish and maintain an automated dust suppression sprinkler system that covers all outside storage piles, except for the working face while being worked, which will activate and remain operational for the duration of outside product pile storage, including unloading and loading. The sprinkler system shall have a capacity in terms of volume and layout that will ensure adequate dampening down of the stockpile in all possible wind conditions.
	Compliance	25-Mar-14 No outside storage has taken place.
	Compliance	14-Apr-15 No outside storage of phosphate rock has occurred. The sulphur stored outside was wet and moved inside as soon as it was dry enough to be shifted.
12	Environmental	The consent holder shall ensure regular sweeping of yard and road areas using mechanical cleaning to minimise dust emissions.
	Compliance	25-Mar-14 The yard and road areas are swept monthly.
	Compliance	14-Apr-15 Dust levels are monitored and the yard and road areas are swept at least monthly.
13	Technical	The consent holder shall ensure that the product storage pile does not exceed 4 metres in height.
	Not applicable	25-Mar-14 Product is stored inside.
	Compliance	14-Apr-15 The sulphur product storage pile was less than 4 metres in height.
14	Environmental	Except for discharges from the auxiliary boiler, furnace stack, economiser stacks and other minor vents, all discharges from the acid plant shall be via an emission stack with a height no less than 55 metres above ground level.

Condition No.	Type of Condition	Consent Condition and Compliance Assessment
	Compliance	25-Mar-14 The stack height has not changed since the last monitoring report.
	Compliance	15-Apr-15 Except for those described in this condition, all emissions are from the stack as required.
15	Environmental	The emission rate of Sulphur Dioxide (SO ₂) measured by continuous monitoring in the acid plant stack shall not exceed 1.5 kilograms (kg) per minute (two minute average) and 60 kg/hour (one-hour average) at any time.
	Compliance	25-Mar-14 Monitoring results in the monthly reports confirm compliance with this condition during the monitoring period.
	Compliance	15-Apr-15 SO₂ emissions are continuously monitored and recorded at the acid plant and alarms set should any exceedance occur. The data provided shows no exceedances have occurred during the monitoring period.
16	Environmental	Notwithstanding Condition 15, the combined discharge rate of SO ₂ , Sulphur Trioxide (SO ₃) and Sulphuric Acid (H ₂ SO ₄) from the sulphuric acid production process shall not exceed 60 kg/hr, expressed as SO ₂ .
	Compliance	25-Mar-14 Monitoring results in the monthly reports confirm compliance with this condition during the monitoring period.
	Compliance	15-Apr-15 Combined sulphur emissions are continuously monitored as per this condition. The emissions are recorded and displayed at the acid plant and alarms set should any exceedance occur. The data provided shows no exceedances have occurred during the monitoring period.
17	Environmental	An Acid Plant cold start up sulphur ignition shall not occur: a. between the hours of 1:00 am and 10:00 am on clear still mornings when the wind speed is less than 2 m/s and there is no cloud; and b. when the wind direction is between 030 and 155 degrees (onshore winds). Note: For the purposes of this consent, an acid plant cold start refers to starting the acid plant from cold, this occurs following a complete shutdown when the acid plant is starting from ambient temperatures and diesel is used to pre-heat the plant. An acid plant warm start refers to starting the acid plant when the plant is already warm, this occurs following a short plant stop, usually less than 8 hours, when the temperature in the acid plant has been maintained above a critical limit.
	Compliance	25-Mar-14 The Council Officer was present for the most recent cold start. Sulphur ignition occurred in accordance with this condition.

Condition No.	Type of Condition	Consent Condition and Compliance Assessment
	Compliance	15-Apr-15 Cold starts occurred during appropriate conditions over the monitoring period as below: 24/8/14 sulphur ignition at 2pm. Wind direction was approximately 180°. 3/11/14 sulphur ignition at 10:40am. Wind was in the south-west quarter.
18	Environmental	Subject to condition 21, the combined discharge rate of SO ₃ and H ₂ SO ₄ (expressed as SO ₃) from the sulphuric acid production process shall not exceed: a. 2 kg/hr as a 1-hour average at any time; b. 0.5 kg/hr for at least 50% of fixed 1-hour averages in any 3 month period.
	Compliance	28-Mar-14 Monitoring results in the monthly reports confirm compliance with this condition during the monitoring period.
	Compliance	15-Apr-15 Data provided in the annual report and monthly reports, shows compliance with this condition.
19	Environmental	The existing final acid plant absorbing tower shall be replaced with a new tower containing a high efficiency distribution system, high efficiency packing and high efficiency mist eliminators that reduces the acidity of emissions from the acid plant to ensure compliance with the conditions of this consent at all times. The new tower shall be installed and commissioned by 30th October 2012. A suitably qualified independent person approved by Council shall certify in writing that the new absorbing tower, as installed and operated, is capable of meeting the conditions of this consent. This certification shall be provided to the Council by 30th November 2012.
	Not applicable	25-Mar-14 This condition is historical.
	Not applicable	15-Apr-15 This condition is historical.
20	Environmental	The discharge from the acid plant stack shall be clear at all times, except that a visible white plume may occur within four hours of igniting sulphur in the case of a cold start up and within one hour in the case of a warm start up.
	Compliance	28-Mar-14 The Council Officer has observed the acid plant stack discharge to be clear whilst undertaking onsite inspections and offsite observations.
	Compliance	15-Apr-15 Off-site observations and during site visits have shown the acid plant stack discharge to be clear at all times.
21	Environmental	The discharge from the acid plant may contain up to 150 milligrams per cubic metre (mg/m ³) at NTP SO ₃ / H ₂ SO ₄ expressed as SO ₃ for not more than 4 hours after igniting sulphur in the case of a cold start and not more than 1 hour in the case of a warm start up. This shall be measured in accordance with USEPA method 8 or another method as approved by Council.

Condition No.	Type of Condition	Consent Condition and Compliance Assessment
	Compliance	28-Mar-14 Data provided shows compliance with this condition.
	Compliance	16-Apr-15 Testing carried out during the cold starts over the monitoring period show compliance with this condition. Peaks of 73 kg/hr SO₂ (continuous monitoring) and 51.8 kg/hr (manual USEPA method 8) were reached on 24/8/14. A peak of 24.5kg/hr (continuous monitoring) was reached during the 3/11/14 cold start and 68.6 mg/m³ SO₃ (manual USEPA method 8). As per the latest cold-start report, please would you provide SO₃ readings in mg/m³ going forward.
22	Environmental	The discharge from the acid plant shall not occur during wind directions between 030 and 155 (onshore winds) between the months of September to May inclusive, when either of the following meteorological conditions occur a. The relative humidity measured on-site at 10 metres above ground level is 92% or greater, wind speed at 10 metres above ground level is 3 m/s or less and it is not raining; or b. The relative humidity measured on-site at 10 metres above ground level is 95% or greater, wind speed at 10 metres above ground is greater than 3 m/s and it is not raining. Acid plant discharge shall cease within 30 minutes of the above meteorological conditions being detected and shall not recommence until these conditions have not occurred for a period of at least 30 minutes. Plant operators shall be alerted when the measured relative humidity at 10 metres above ground during onshore winds (030-155 degrees) exceeds 90%, and careful observation of meteorological conditions and the visible plume discharge shall occur during such conditions. A record shall be kept of the dates, time periods and meteorological conditions when the acid plant operation ceases according to this condition. This record shall be provided to the Council on request and otherwise annually.
	Compliance	28-Mar-14 The consent holder monitors these conditions from the control room. Any shutdowns due to these requirements are reported in the monthly reports.
	Compliance	16-Apr-15 There have been no shutdowns of the acid plant due to weather conditions during the monitoring period. When the designated conditions occur, as described in this condition, an alarm is triggered in the acid plant control room. Operators then assess the conditions and determine if and when a discharge cease is required. All information is recorded and logged.
23	Environmental	A system shall be installed that automatically shuts off the sulphur feed to the burner so that the discharge to air rate of SO ₂ , SO ₃ and H ₂ SO ₄ from the sulphuric acid production process does not exceed Conditions 15 and 16.
	Compliance	28-Mar-14 An automatic shut-off valve is maintained.

Condition No.	Type of Condition	Consent Condition and Compliance Assessment
	Compliance	16-Apr-15 The automatic shut-off valve is maintained.
24	Technical	<p>a. The consent holder shall install and operate at least two ambient SO₂ monitors around the acid plant in order to detect fugitive SO₂ emissions. The monitoring sites shall be located at or about the southern boundary of the "Winstones" site, as described in Condition 57, and at or about the engineering store compound, to the western side of the acid plant. The concentration of SO₂ in ambient air shall be monitored continuously (at least every minute) by UV fluorescence analysis or an alternative method agreed to in writing by the Council; and</p> <p>b. In the event that ambient concentrations of SO₂ measured at either the monitoring sites described by Condition 24(a) or the monitoring site described by Condition 57 exceed 350 µg/m³ as a 10-minute average, immediate action shall be taken to ensure that measured SO₂ concentrations are reduced to less than 350 µg/m³ as a 10 minute average. A record shall be kept of all occurrences when measured SO₂ concentrations exceed this limit and the corrective action taken. This record shall be provided to the Council on request and otherwise annually.</p>
	Compliance	28-Mar-14 The ambient SO ₂ monitors are in place and results reported monthly. Records of and reasons for any exceedences are reported in the monthly reports.
	Compliance	16-Apr-15 SO ₂ concentrations are monitored at the two ambient monitoring sites. SO ₂ concentrations were above the 10-minute average during the following periods: "Winstones S" on two occasions in July 2014. These were explained via fitters using a gas plant to heat solid sulphur out of a pump being repaired. "Winstones S" on 55 occasions in August 2014. This related to the cold start-up. "Archimedes" on three occasions in September 2014. Explanations were a gas torch used on a sulphur pump in the workshop and two unexplained reasons. These have been attributed to work undertaken in the acid plant workshop. Both "Winstones S" (6 times) & "Archimedes" (17 times) in November 2014. The Archimedes exceedences were attributed to the acid plant cold start. The Winstones exceedences were due to a fire in the melter tank and a small yard fire. "Winstones S" had one exceedance in February 2015 due to a fire in the acid plant sulphur storage tank. Hot weather has been attributed to the cause.
25	Environmental	Discharge from the Auxiliary Boiler shall be via an emission stack of 15.8 metres above ground level.
	Compliance	28-Mar-14 The stack height has not changed since the last monitoring report.

Condition No.	Type of Condition	Consent Condition and Compliance Assessment
	Compliance	16-Apr-15 The discharge from the auxiliary boiler is from the stack. This has not changed since the last monitoring period.
26	Environmental	The diesel oil burning rate in the auxiliary boiler shall not exceed 580 litres per hour.
	Compliance	28-Mar-14 The manufacturers of the auxiliary boiler confirm the diesel usage at maximum output is about 430 L/h.
	Compliance	16-Apr-15 Diesel burning rate is a maximum of 430L/h as per manufacturer's specifications.
27	Environmental	The auxiliary boiler and the pre-heater shall only burn diesel oil having a maximum sulphur content of 0.005% by weight. Documents showing fuel analysis shall be provided to the Council on request.
	Compliance	28-Mar-14 Quality notifications for diesel supply confirm compliance. The most recent notification shows sulphur content to be 0.00062%.
	Compliance	16-Apr-15 This is a NZ standard. Quality notifications provided with the diesel deliveries confirm it meets the required specifications.
28	Environmental	The opacity of emissions from the auxiliary boiler and pre-heater stacks shall not be darker than Ringelmann Shade 1 as determined in accordance with the New Zealand Standard 5201:1973, except for a period not exceeding 2 minutes in each hour of operation.
	Compliance	28-Mar-14 The last test conducted showed the emissions to be Ringelmann Shade 0.
	Compliance	16-Apr-15 Ringelmann tests carried out on 18/8/14 and 3/10/14 had results of Shade 0 for the test duration on both occasions.
29	Environmental	The concentration of hydrogen sulphide (H ₂ S) shall be measured in accordance with Condition 50 and shall not exceed 7 µg/m ³ (with a 1 hour averaging time) in the ambient air at or beyond the boundary of the premises as a result of emissions from the consent holder's property.
	Compliance	28-Mar-14 The Council monitored H ₂ S from 20/01/14 to 28/01/14. H ₂ S emissions did not exceed 1µg/m ³ during this period.
	Compliance	16-Apr-15 H₂S testing carried out 12-19 January 2015 showed a maximum peak of <4µg/m³ (1 hr average). This peak occurred when the wind direction was from Bio Rich.
30	Environmental	Discharges from each den scrubber shall be via stacks with a height of no less than 38 metres above ground level.
	Compliance	28-Mar-14 The den scrubber stack heights have not changed since the last monitoring report.

Condition No.	Type of Condition	Consent Condition and Compliance Assessment
	Compliance	16-Apr-15 Discharges from the den scrubbers are via stacks with the required heights. These have not changed since the previous monitoring period.
31	Environmental	Discharges from the hygiene scrubber shall be via a stack with a height of no less than 36 metres above ground level.
	Compliance	28-Mar-14 The hygiene stack height has not changed and is greater than 36m above ground level.
	Compliance	16-Apr-15 Discharges from the hygiene scrubber are via a stack with the required height. The stack has not changed since the previous monitoring period.
32	Environmental	All emissions from the superphosphate manufacturing process shall be discharged through either the den stacks or the hygiene stack. Within 12 months of the commencement of this consent a report shall be provided by an independent suitably qualified person (approved by the Council) that certifies that all necessary remedial work to the ventilation and extraction system has been undertaken such that fugitive contaminant emissions from the manufacturing plant building have been eliminated as far as practicably possible. This ventilation and extraction system shall be maintained and operated at all times during the manufacturing of superphosphate.
	Not applicable	28-Mar-14 The work listed under this condition has been completed and this condition is historical.
	Not applicable	16-Apr-15 This condition is historical.
33	Environmental	The 7-day average concentration of fluoride measured at the RFC SW monitoring site (location as detailed in Condition 54), shall not exceed 1.7 µg/m ³ .
	Compliance	01-Apr-14 Monitoring results in the monthly reports confirm compliance with this condition during the monitoring period.
	Compliance	16-Apr-15 The 7-day average fluoride concentration has not exceeded 1.7 µg/m³ during the monitoring period. The highest concentration reached was 0.44µg/m³ in February / March 2015.
34	Environmental	The 7-day average concentration of fluoride measured at the RFC NW monitoring site (location as detailed in Condition 54), shall not exceed 5.5 µg/m ³ .
	Compliance	01-Apr-14 Monitoring results in the monthly reports confirm compliance with this condition during the monitoring period.

Condition No.	Type of Condition	Consent Condition and Compliance Assessment
	Non Compliance	16-Apr-15 <p>The 7-day average concentration of fluoride at this location was exceeded on two occasions:</p> <p>17 December 2014 = 5.52µg/m³ (minor breach as result rounds to 5.5 - 1dp - as per consent)</p> <p>14 January 2015 = 6.93µg/m³.</p> <p>A second monitor has been installed at this site due to erratic readings being recorded recently to ensure the results are real and not due to instrument error.</p> <p>This condition will be re-assessed once the investigation results have been received.</p>
35	Environmental	The rate of particulate matter discharged from any Bradley mill shall not exceed 1 kg/hr per mill, and 2 kg/hr in total when two or more mills are in operation.
	Compliance	01-Apr-14 <p>Monitoring results in the monthly reports confirm compliance with this condition during the monitoring period.</p>
	Compliance	16-Apr-15 <p>Testing undertaken shows compliance with this condition.</p>
36	Environmental	The sum of the fluoride compounds discharged from the den stacks and the hygiene stack measured in the samples taken in accordance with Condition 49 expressed as fluoride on a one hour average basis, shall not exceed: <ul style="list-style-type: none"> a. a maximum discharge rate of 1.5 kg/hr; and b. 1 kg/hr in more than 50% of samples taken in any 12-month period
	Compliance	01-Apr-14 <p>Monitoring results in the monthly reports confirm compliance with this condition during the monitoring period.</p>
	Compliance	16-Apr-15 <p>Data provided in the annual report and monthly reports, shows compliance with this condition.</p>
37	Environmental	A treatment system that reduces the acidity of emissions from the manufacturing plant shall be installed such that after 3 months from the commencement of this consent the pH of the condensate from the den and hygiene stacks shall be no lower than 2.7. The method by which the condensate is to be measured shall be approved in writing by the Council.
	Non Compliance	28-Mar-14 <p>A system is in place.</p> <p>pH condensate results complied with this condition for all of the reporting period except February 2013. The Hygiene stack had a pH between 2.5-2.7 for this month.</p>

Condition No.	Type of Condition	Consent Condition and Compliance Assessment
	Non Compliance	<p>16-Apr-15</p> <p>There have been two occasions during the monitoring period where pH has been less than 2.7:</p> <p>On 29/5/14 side 1 had a pH of 2.58.</p> <p>On 5/6/14, side 1 had a pH of 2.69 (minor breach as result is effectively 2.7 when rounded to 1dp, as per the condition).</p>
38	Environmental	<p>An automated water deluge system for the manufacturing den mixer shall be installed and maintained such that contaminant discharges are prevented in the event of failure of the mixing process.</p>
	Compliance	<p>28-Mar-14</p> <p>A system is in place.</p>
	Compliance	<p>16-Apr-15</p> <p>A water deluge system is in place. One tonne of water is available to be dropped into the mixer to free up the mixing process should it get stuck.</p>
39	Environmental	<p>Until such time as the pH of the discharge from the manufacturing plant is consistently above 2.7, as required by Condition 37, when the wind speed at the site is no more than 3 m/s and the wind direction is between 030-155 degrees (i.e. on-shore) the manufacture of fertiliser shall only occur when either:</p> <p>a. the temperature at the site is less than 22 C; and</p> <p>b. the manufacturing stack plume is "OK" as indicated in the chart attached as Appendix "A".</p> <p>OR</p> <p>c. the temperature at the site is 22 C or more; and</p> <p>d. it is daylight; and</p> <p>e. the relative humidity at the site is less than 70%; and</p> <p>f. there is no fog; and</p> <p>g. the manufacturing stack plume is 'OK' as indicated in the chart attached as Appendix "A".</p> <p>The time and duration of manufacturing plant stoppages due to meteorological conditions shall be recorded. These records shall be provided to the Council on request.</p>
	Not applicable	<p>28-Mar-14</p> <p>A dosing system is in place to maintain pH above 2.7.</p>
	Compliance	<p>16-Apr-15</p> <p>A dosing system is in place. When this is not in use an automatic shutdown system will take effect if the relevant conditions arise for a period greater than 10 minutes.</p>
40	Environmental	<p>The concentration of fluoride in ambient air measured in accordance with Condition 54 shall not exceed 0.8 µg/m³ (7 day average) at areas used for horticultural production (including Brookfields Orchard and Plumpton Park (locations as detailed in Condition 54)).</p>

Condition No.	Type of Condition	Consent Condition and Compliance Assessment
	Compliance	01-Apr-14 Monitoring results in the monthly reports confirm compliance with this condition during the monitoring period.
	Compliance	20-Apr-15 Fluoride concentration in ambient air measured at both sites has been <0.1 throughout the monitoring period.
41	Environmental	The evaporative cooling towers shall be regularly dosed with micro-biocides to maintain the concentration of the micro-biocide in the cooling water at the level recommended by the supplier that prevents the establishment of Legionella bacteria. Records shall be kept to demonstrate compliance with this condition and shall be provided to the Council on request.
	Compliance	28-Mar-14 The cooling towers are regularly dosed as per this condition. Test results are provided with the monthly reports.
	Compliance	16-Apr-15 The cooling towers are regularly dosed with micro-biocides.
42	Technical	The consent holder shall operate a meteorological data collection station in a location that reasonably represents meteorological conditions on the site. The station shall continuously record, wind speed, wind direction, temperature and relative humidity, and display them in real time in the manufacturing control room and the acid plant control room. The site location and the resolution, accuracy and averaging time of monitoring equipment shall be agreed in writing by the Council. All processed data shall be archived and made available to the Council on request.
	Compliance	28-Mar-14 The meteorological data collection station is operating as per this condition.
	Compliance	16-Apr-15 Two weather stations are maintained and data displayed and recorded as per this condition.
43	Technical	All sampling and surveys shall be carried out by an independent suitably qualified person, or by the consent holder or its representative where the Council has agreed to this in writing. Where the consent holder or its representative carries out testing or monitoring, an independent suitably qualified person shall audit the monitoring and testing methodology at least once per year, unless otherwise agreed in writing by the Council, and shall provide a written report describing the extent of compliance with the required protocol. A copy of this report shall be provided to the Council.
	Compliance	28-Mar-14 The site maintains ISO accreditation. EAM also carries out testing at this site. The consent holder is putting in place a regular auditing system for their monitoring and testing.
	Compliance	20-Apr-15 Sampling and surveys are carried out by qualified providers. EAM NZ carries out stack testing and the lab staff undertake acid plant and ambient fluoride testing. The site maintains ISO accreditation and is scheduling an audit by K2 Environmental Ltd.
44	Technical	All analyses in accordance with conditions on the consent shall be carried out

Condition No.	Type of Condition	Consent Condition and Compliance Assessment
		by an independently accredited laboratory to ISO/IEC Guide 25, or to the satisfaction of the Council.
	Compliance	28-Mar-14 ARL has accreditation for the analyses they carry out. Though the site laboratory is not accredited, Council is satisfied with the analyses they carry out.
	Compliance	20-Apr-15 ARL is accredited for the analyses they carry out. Council is satisfied with the analyses the site laboratory carries out. An audit of the testing processes and procedures will be undertaken in the near future.
45	Technical	The consent holder shall continuously (i.e. at intervals not exceeding 1 minute) measure the rate of SO2 discharge in the emissions from the acid plant stack. The method of measurement shall be in accordance with ISO7935:1992 (E) (Stationary source emissions – Determination of the mass concentration of sulphur dioxide – performance characteristics of automated measuring methods) or an alternative method, approved in writing by the Council. Testing results shall be reported as a mass emission rate in units of kg/hr as both 1-minute and 1-hour averages.
	Compliance	28-Mar-14 The SO2 discharge in the acid plant stack emissions are continuously measured and reported.
	Compliance	20-Apr-15 The SO2 discharge rate is continuously measured and reported as required. The SO2 analyser is an approved method for the measurement of ambient SO2 in accordance with US statutes and is industry standard.
46	Technical	All options for a continuous in-stack SO3/H2SO4 monitoring system shall be reviewed and analysed every 18 months by a suitably qualified independent person. The independent reviewer shall prepare a written report detailing the viability and estimated cost of all monitoring options internationally available. This information shall be provided to the Council no later than one month after the time of review. a. From 1st November 2012 continuous opacity measurements shall be undertaken in the acid plant stack at all times to provide an indication of acid mist emissions for operational purposes. Records of these measurements shall be kept and made available to Council on request.
	Compliance	28-Mar-14 The previous monitoring report noted a report had been received. The next report is not yet due.
	Compliance	20-Apr-15 A report reviewing the various options available for continuous in-stack monitoring, as per this condition, was received 16/9/14.
47	Technical	The consent holder shall measure the rate of discharge of the SO2, SO3 and H2SO4 in the emissions from the acid plant stack, at least twice per week. This monitoring shall be undertaken in accordance with USEPA Method 8 ("Determination of sulphuric acid mist and sulphur dioxide emissions from stationary sources") or an alternative method that is approved, in writing, by the Council.
	Compliance	01-Apr-14 Monitoring results in the monthly reports confirm compliance with this

Condition No.	Type of Condition	Consent Condition and Compliance Assessment
		condition during the monitoring period.
	Compliance	20-Apr-15 The required testing takes place and is reported in the monthly reports.
48	Technical	The discharge rate of the total sulphur compounds obtained in accordance with Condition 47 shall be used in conjunction with the continuous record of sulphur dioxide obtained in accordance with Condition 45 to determine a continuous record of the rate of sulphur compounds discharged, expressed as SO ₂ .
	Compliance	01-Apr-14 Monitoring results in the monthly reports confirm compliance with this condition during the monitoring period.
	Compliance	20-Apr-15 The required testing takes place and is reported in the monthly reports.
49	Technical	The consent holder shall measure the discharge rate of fluoride in the emissions from each of the den stacks and the hygiene stack, at least twice per week using wet chemistry methods. The measurement is to be carried out during superphosphate manufacture and no test may commence within one hour of starting acidulation. The method of measurements shall be in accordance with USEPA Method 13B ("Total fluoride specific ion electrode") or an alternative method approved, in writing, by the Council.
	Compliance	01-Apr-14 EAM carries out this testing. Two tests per week have not always been carried out due to weather conditions being unsafe or plant breakdowns.
	Compliance	20-Apr-15 EAM NZ carries out the testing required by this condition. Results are reported in the monthly reports. Two tests per week have not always been carried out due to plant breakdowns or weather conditions making testing unsafe.
50	Technical	Concentrations of hydrogen sulphide in ambient air shall be monitored in accordance with the method of measurement (AS 3580.8.1 1990). The methods for sampling and analysis shall be automatic intermittent sampling - gas chromatographic method, or an alternate method approved in writing by the Council. The monitoring shall be carried out for a period of at least seven complete days at least twice per year. The location of the monitoring shall be agreed upon with the Council at the time of installation of the monitoring equipment. Results shall be reported as 1-hour averages.
	Compliance	01-Apr-14 Council has carried out one week of monitoring from 20/01/2014 to 28/01/2014. One spike of H ₂ S was recorded of 1µg/m ³ .
	Compliance	20-Apr-15 Hydrogen sulphide monitoring was undertaken by Council between 12/1/2015 - 19/1/2015 (see Condition 29 comments).
51	Technical	The rate of particulate matter discharged from each mill shall be measured at least once every 3 months. The method of sampling and analysis shall comply with USEPA Method 5 or Method 17, ISO 9096:2003 or ASTM D3685-98, or a similar iso-kinetic method to the satisfaction of the Council. The testing time for each sample shall be 2-hours continuous, and at least three samples shall be collected. Results shall be adjusted to 0 C, 101.3

Condition No.	Type of Condition	Consent Condition and Compliance Assessment
		kilopascals, on a dry gas basis, and as a mass emission from each stack expressed as kg/hr.
	Compliance	01-Apr-14 The consent holder has measured the rate of particulate matter as per this condition. Data is submitted in the monthly reports.
	Compliance	20-Apr-15 Sampling of the rate of particulate matter from each mill has taken place as required. Results have been provided in the relevant monthly reports.
52	Technical	Pressure and particulate in the baghouses serving the Bradley mills shall be continuously monitored and recorded to detect broken bags in the Bradley mills. A central alarm system shall be operated to warn the plant operator of a bag breakage or any change in pressure that may indicate a broken filter bag. The bag filters serving the Bradley mills shall also be manually inspected on a regular basis and shall be replaced where the inspection reveals excessive wear. Records shall be kept of bag filter pressure, Bradley mill shutdowns, manual inspections and filter bag replacements. These records shall be provided to the Council on request.
	Compliance	01-Apr-14 The mills have sensors in them and are integrated into the computer system. An alarm sounds if there are any issues and prevents the plant from starting. Bagothouses are inspected daily and any preventative maintenance or maintenance is recorded.
	Compliance	20-Apr-15 The mills have sensors that are integrated into the computer system. An alarm sounds if any issues occur and prevents the plant from starting. Bagothouses are inspected daily and any maintenance recorded.
53	Technical	The pH of the condensate from the den scrubbers and the hygiene scrubber stacks shall be measured at least twice each week. The method by which the condensate is to be measured shall be approved in writing by the Council.
	Compliance	01-Apr-14 The condensate pH is measured in tandem with the fluoride (see Condition 49).
	Compliance	20-Apr-15 pH of condensate from each of the stacks is measured in tandem with the fluoride (Condition 49). Two tests are not always carried out due to plant breakdowns or weather conditions.
54	Technical	The consent holder shall continuously measure ambient fluoride, in accordance with the monitoring plan required by Condition 68 and based on 7-day filter exposures and results reported as average concentration ($\mu\text{g}/\text{m}^3$) over that 7-day sample period. Measurements shall be taken at no less than five sites, within 4 kilometres (km) of the plant, including those listed in Table 1 below; Table 1: Ambient fluoride monitoring sample sites – see table in consent document

Condition No.	Type of Condition	Consent Condition and Compliance Assessment
		The location of the sites may be modified with the written approval of the Council. [Note: Approval from property owners/occupiers for the placement and operation of monitors is required.]
	Compliance	01-Apr-14 Ambient fluoride is measured as per this condition. Results are provided in the monthly reports.
	Compliance	20-Apr-15 Ambient fluoride has been measured throughout the monitoring period and results provided monthly.
55	Technical	Ambient fluoride measurement undertaken in accordance with Condition 54 shall occur at a height of 2.4 metres above ground level with no obstruction above 2 metres high in the direction of the RFC plant for 50 metres, unless otherwise approved in writing by the Council.
	Compliance	01-Apr-14 Ambient fluoride monitoring is undertaken in accordance with this condition.
	Compliance	20-Apr-15 Ambient fluoride is undertaken in accordance with this condition.
56	Technical	The consent holder shall ensure ambient fluoride measurement is undertaken in accordance with AS3580.13.2 – 1991 (“Method 13.2: Determination of fluorides – Gaseous and acid soluble particulate fluorides – Manual, double filter paper sampling”) or an alternative method approved, in writing, by the Council.
	Compliance	01-Apr-14 Council understands ambient fluoride is measured as per this condition. This will be confirmed during the next site inspection.
	Compliance	20-Apr-15 Ambient fluoride monitoring is undertaken as required.
57	Technical	Concentrations of SO ₂ in ambient air shall be monitored continuously according to the method of measurement AS3580.4.1 – 1990 (“Method 4.1: Determination of sulphur dioxide – direct reading instrumental method”), or an alternative method agreed to in writing by the Council. The monitoring shall begin within 3 months of commencement of this consent. The monitoring site shall be located at or about the southern boundary of the “Winstones” site, to the southeast of the den stacks, and in an area agreed to in writing by the Council prior to establishment. Results shall be provided as 1-hour and 24-hour averages. Any exceedance of the Resource Management (National Environmental Standards for Air Quality) Regulations 2004 (NES) for SO ₂ shall be reported as soon as it is known.
	Compliance	01-Apr-14 The monitoring is carried out by Watercare Services. Results are reported in the monthly reports.
	Compliance	20-Apr-15 Watercare services carries out this monitoring and results are reported monthly.
58	Technical	Concentrations of PM ₁₀ in ambient air shall be monitored continuously according to a method of measurement that complies with the monitoring

Condition No.	Type of Condition	Consent Condition and Compliance Assessment
		requirements in the NES, or an alternative method agreed to in writing by the Council. The monitoring shall begin within 3 months of commencement of this consent. The monitoring site shall be located at or about the southern boundary of the "Winstones" site, to the southeast of the den stacks, and shall be agreed in writing by the Council prior to establishment. Results shall be provided as a 24-hour average. Any exceedance of the NES for PM10 shall be reported as soon as it is known.
	Compliance	01-Apr-14 The monitoring is carried out by Watercare Services. Results are reported in the monthly reports.
	Compliance	20-Apr-15 Watercare services carries out this monitoring and results are reported monthly.
59	Technical	Continuous monitoring of total suspended particulate matter shall be undertaken at two locations at all times that bulk material is stored outside. The monitoring sites shall be at the eastern boundary at a location most affected by bulk material dust discharges and at a reference location at the northern end of the site. The monitoring shall have an averaging period of 24-hours or less and the method of monitoring shall be approved in writing by the Council. Monitoring results shall be provided to the Council within two months of the cessation of bulk material storage and otherwise at least annually.
	Compliance	01-Apr-14 There has been no outside storage of bulk material during the reporting period.
	Compliance	20-Apr-15 Bulk material has not been stored outside during the monitoring period. A small pile of sulphur was stored outside for a short time due to its water content. This was stored in a sheltered location and the risk of discharge to air, minimal.
60	Technical	Every 24 months, from the commencement of this consent, the consent holder shall review the available methodology for measuring acid deposition at no less than two sites in horticultural areas within 4 km of the plant and this information shall be provided to the Council. Any new methodologies will be reviewed against the current vegetation monitoring programme, as per Condition 66. The deposition monitoring protocol shall be determined in conjunction with and agreed to in writing by the Council prior to the commencement of monitoring.
	Compliance	28-Mar-14 The last review was received 25/02/2014. The report concluded there are no commercially available monitoring technologies for measuring the acid deposition.
	Not applicable	20-Apr-15 The next report is due 25/2/2016.
61	Technical	The consent holder shall undertake a survey every two years of the effects of fluoride etching on all properties (where the owner accepts the offer of a survey) within 1 km of the site using the methodology outlined in the BRANZ report DCZ059 (25 June 2004). Any windows found to be affected to 'pen test level 3' or where Light Gloss Units (LGU) are equal or less than 115 as described in BRANZ report DCZ059, shall be replaced by the consent holder

Condition No.	Type of Condition	Consent Condition and Compliance Assessment
		if the property owner wishes the glass to be replaced.
	Compliance	01-Apr-14 The surveys have been completed as required.
	Compliance	20-Apr-15 The last report was carried out in 2014. Opus undertook the initial glass monitoring and BRANZ provided further analysis into the cause of any etching. It was concluded the majority of deposits causing etching of glass was from salt and road emissions.
62	Technical	The consent holder shall advise the Council at least 24 hours in advance of a planned warm or cold start up of the acid plant. The Council shall be advised of the time when sulphur will be ignited and the person in charge of the procedure.
	Compliance	01-Apr-14 Council has been advised of all planned acid plant starts.
	Compliance	21-Apr-15 Advice has been provided to Council whenever there has been a planned warm or cold acid plant start.
63	Technical	At monthly intervals the consent holder shall provide the Council with copies of all information (including test results, reports and records) required to be collected in accordance with the conditions of this consent during the previous month, unless the condition specifically allows the information to be provided at a different interval. This information shall be provided in a report format, and shall comment on site performance and compliance with consent conditions.
	Compliance	01-Apr-14 Council receives monthly reports as per this condition.
	Compliance	21-Apr-15 Monthly reports are provided at the required frequencies.
64	Technical	The consent holder shall produce a report every year (the 'annual report') that presents and summarises all information on the monitoring required by this consent. The report shall include, but not necessarily be limited to: <ul style="list-style-type: none"> a. quantification of and assessment of the impact of discharges of dust, PM10, SO2, fluoride and acidic compounds; and b. the fluoride and foliar monitoring report; and c. the impact of odour and H2S discharges from the site; and d. a description of any potential and actual effects that have been identified; and e. identification of trends of monitoring information; and f. a summary of system modifications; and g. recommendations for system improvements; and h. the monthly fluoride content of phosphate rock blends. <p>The annual report shall be prepared for the period beginning July and ending June of the following year and provided to the Council before 31 October</p>

Condition No.	Type of Condition	Consent Condition and Compliance Assessment
		each year.
	Compliance	01-Apr-14 Council has received the annual report.
	Compliance	21-Apr-15 The annual report was received 8 October 2014 for the period July 2013 - June 2014.
65	Technical	<p>The consent holder shall maintain a log of all complaints received directly from the public. The log shall include;</p> <ul style="list-style-type: none"> a. the date, time, and nature of the complaint; and b. the telephone number, and address of the complainant (as provided); and c. weather information (including an estimate of wind speed and direction); and d. details of key operating parameters at the time of the complaint; and e. the remedial action taken, as appropriate, to prevent further incidents. <p>Complaints shall be reported to the Council within 12 hours of receipt and the log of complaints shall be made available to the Council on request.</p>
	Compliance	01-Apr-14 A complaints register is maintained. No complaints have been received.
	Compliance	21-Apr-15 A complaints log is kept. No complaints have been received during the monitoring period.
66	Technical	<p>The consent holder shall undertake a vegetation monitoring programme that has been approved by the Council in accordance with Condition 68 of this consent. The programme shall provide for the following matters:</p> <ul style="list-style-type: none"> a. A visual assessment of vegetation; and b. A determination of foliar fluoride concentrations; and c. The timing of the vegetation monitoring programme (which shall occur during the months of September to May inclusive for the duration of the consent, unless otherwise agreed in writing by the Council); and d. The monitoring methodology which shall be agreed in writing by the Council; and e. The location of any monitoring, including but not limited to the following sites (Table 2): <p>Table 2: Fluoride monitoring sample sites – see table in consent document.</p> <p>Provided that the location of the monitoring sites may be modified as appropriate with the written agreement of the Council.</p> <ul style="list-style-type: none"> f. The requirement for the initial crop assessment to be completed within 12 months of the commencement of this consent; and g. The requirement for the consent holder to provide a report to the Council upon the completion of the first two years of vegetation monitoring, to determine whether the monitoring programme may be amended or modified

Condition No.	Type of Condition	Consent Condition and Compliance Assessment
		as necessary; Provided that any amendments to the monitoring programme shall only occur with the written agreement of the Council.
	Compliance	01-Apr-14 Council and landowners have received a copy of the 2013 report. The next monitoring round is presently underway.
	Compliance	21-Apr-15 The 2014 report was received 7 July 2014. The 2015 report is not yet due.
67	Technical	The consent holder shall prepare and submit to the Council for approval within two months of the date of commencement of this consent, a Management Plan that details how all discharges to air from the site and their effects shall be measured, assessed and managed. The Management Plan shall be complied with at all times during the exercise of this consent, and shall include but not be limited to the management of the following matters: a. Dust including particulate; and b. Outside phosphate rock storage; and c. Sulphur dioxide; and d. Acidic discharges; and e. Fluoride; and f. Odour. The Management Plan shall specify all actions necessary to ensure ongoing compliance with all conditions of this consent. The consent holder shall update the Management Plan at least once every two years, and otherwise where necessary, with the written agreement of the Council.
	Compliance	01-Apr-14 No changes to the Management Plan have been made since the last update received by Council.
	Compliance	21-Apr-15 An updated Monitoring and Management Plan was received 14 January 2015.
68	Technical	The consent holder shall prepare and submit to the Council for approval within two months of the date of commencement of this consent, a Monitoring Plan that monitors the impact of discharges to air from the site. The Monitoring Plan must be complied with at all times during the exercise of this permit, and shall include but not be limited to the following monitoring matters: a. Manufacturing stack monitoring requirements; and b. Acid plan stack monitoring requirements; and c. Dust monitoring requirements; and d. Ambient SO ₂ , particulate matter and H ₂ S monitoring; and e. Off site ambient fluoride monitoring requirements; and

Condition No.	Type of Condition	Consent Condition and Compliance Assessment
		f. Off site crop fluoride monitoring requirements; and g. Sampling methods; and h. Analytical methods; and i. Reporting requirements; and j. Sampling locations; and k. Sampling frequencies; and l. Auditing and peer review. The consent holder shall update the Monitoring Plan at least once every two years, and otherwise where necessary, with the written agreement of the Council.
	Compliance	01-Apr-14 No changes have been made to the Monitoring Plan since the last update received by Council.
	Compliance	21-Apr-15 An updated Monitoring and Management Plan was received 14 January 2015.

Grading Information

Each consent condition has been classified as either a Environmental or Technical condition.

Environmental conditions:

Environmental conditions set standards/performance limits for a resource consent, or, mitigates an environmental impact of exercising a resource consent.

Examples of environmental conditions are:

- Installation of up-gradient cut-off drains/ placement of disposal fields
- volume limits of discharges
- water take rates and maximum volumes
- discharge or receiving water contaminant limits

Technical conditions:

Technical conditions sets out technical requirements that allows a consent holder to demonstrate or measure that they meet the Environmental performance required by a resource consent, or help specify the activity authorised.

Examples of technical conditions are:

- sampling effluent/ recording discharge volumes / collating submitting data
- providing of reports/ plans/ designs specifications
- notifications, accreditation, authorities submissions for approval by ER Manager
- installation and maintenance of a water meter

You need to comply with all conditions regardless of whether it's a Environmental or Technical condition.