THE STATE OF WYOMING

JIM GERINGER
GOVERNOR

Department of Environmental Quality

Herschler Building ● 122 West 25th Street ● Cheyenne, Wyoming 82002

ADMINISTRATION	ABANDONED MINES	AIR QUALITY	INDUSTRIAL SITING	LAND QUALITY	SOLID & HAZARDOUS WASTE	WATER QUALITY
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February 6, 1998

Mr. Richard Casey
Vice President
Solvay Soda Ash Joint Venture
P.O. Box 1167
Green River, Wyoming 82934

Permit No. **CT-1347**

Dear Mr. Casey:

The Division of Air Quality of the Wyoming Department of Environmental Quality has completed final review of Solvay Soda Ash Joint Venture application to construct a new process line, known as the "D" train, to increase soda ash production from 2.40 million tons per year to 3.6 million tons per year and revise the allowable emissions on several existing sources at the Green River Plant located in the NE¼ of Section 31, T18N, R109W approximately fifteen (15) miles west of Green River, in Sweetwater County, Wyoming.

Following this agency's proposed approval of the request as published and in accordance with Section 21(m) of the Wyoming Air Quality Standards and Regulations, the public was afforded a 30-day period in which to submit comments concerning the proposed modification, and an opportunity for a public hearing. A public hearing was held on January 30, 1998 and no public comments were received. Therefore, on the basis of the information provided to us, approval to construct a new process line, known as the "D" train, to increase soda ash production from 2.40 million tons per year to 3.6 million tons per year and revise the allowable emissions on several existing sources as described in the application is hereby granted pursuant to Sections 21 and 24 of the regulations with the following conditions:

1. That authorized representatives of the Division of Air Quality be given permission to enter and inspect any property, premise or place on or at which an air pollution source is located or is being constructed or installed for the purpose of investigating actual or potential sources of air pollution, and for determining compliance or non-compliance with any rules, regulations, standards, permits or orders.

2. That all commitments and descriptions set forth in the application for this permit, unless superseded by a specific condition of this permit, are incorporated herein by this reference and are enforceable as conditions of this permit.

3. For a major source, as defined by Section 30 (c)(i) of the WAQS&R, an application for an operating permit is required within 12 months of commencing operations.

4. Written notification of the anticipated date of initial startup, in accordance with Section 21(i) of the WAQS&R, is required 60 days prior to such date. Notification of the actual date of initial start-up is required 15 days after start-up.

5. Required performance tests will be conducted, in accordance with Section 21(j) of the WAQS&R, within 30 days of achieving maximum design rate but not later than 90 days after initial start-up, and a written report of the results be submitted. The operator shall provide 15 days prior notice of the test date. If maximum design production rate is not achieved within 90 days of start-up, the Administrator may require testing be done at the rate achieved and again when maximum rate is achieved.

6. The date of commencement of construction shall be reported to the Administrator within 30 days of commencement. The construction or modification must commence within 24 months of the date of permit issuance, in accordance with Section 21(h) of the WAQSR, or the permit becomes invalid. The Administrator may extend the period based on a satisfactory justification of the requested extension. If the construction is discontinued for a period of 24 months or more then the permit will also become invalid.

7. Solvay will operate the Green River plant trona calciner and dryers at production rates which do not exceed the rates listed in the following table.

	Calciner Kilns			
Unit	Trona Ore Feed Rate (TPH)	Calcined Ore Production Rate (TPH)	Trona Ore Feed Rate Capacity @ Full Load (MMTPY)	Design Annual Trona Ore Feed Rate (MMTPY)
#17 "A" Calciner	200	147	1.752	1.577
#17 "B" Calciner	200	147	1.752	1.577
#48 "C" Calciner	200	147	1.752	1.577
#80 "D" Calciner	275	202	2.409	2.048
Totals	875	643	7.665	6.779

	Dryer Kiln			
Unit	Wet Crystal Feed Rate (TPH)	Soda Ash Production Rate (TPH)	Soda Ash Production Capacity @ Full Load (MMTPY)	Design Annual Soda Ash Production (MMTPY)
#15 DR-1 Dryer	93	76	0.666	0.594
#15 DR-2 Dryer	93	76	0.666	0.594
#28 DR-4 Dryer	40	32	0.280	0.252
#51 DR-5 Dryer	150	122	1.069	0.962
#82 DR-6 Dryer	198	161	1.410	1.199
Totals	574	467	4.091	3.601

8. Maximum soda ash production at the Solvay soda ash plant will be limited to 3.60 million tons per year, from no more than 6.78 million tons per year of trona ore throughput.

9. The allowable particulate, sulfur dioxide and nitrogen oxide mass emission rates for Solvay Plant emission sources shall be limited to rates shown in Table I of this analysis.

10. Solvay will meet all applicable provisions of New Source Performance Standards Subpart OOO as they apply to the newly constructed equipment in the "D" process train. Thus baghouses AQD #'s 76, 79, 81 and 83 must maintain particulate emissions within O.02 grains per dry standard cubic foot (gr/dscf) of baghouse exhaust and must hold visible emissions to within seven (7%) opacity.

11. Solvay will meet all applicable provisions of New Source Performance Standards Subpart Dc requirements as they apply to the newly constructed AQD #85 boiler. Under that section the owner/operator of a new boiler is required to submit notification of the dates of construction, anticipated and actual start-up, with confirmation of the design heat input capacity and fuels to be combusted.

12. The allowable opacity limits for AQD #80 calciner and AQD #82 dryer will be set based on correlation of the units COM measured opacity during their initial performance testing and first 6 months of operating opacity data. Solvay shall submit a summary of opacity readings during the first 6 months of operation summarizing the monitored opacity readings in increments of 5 percent up to 20 percent. Based on the initial performance testing and first 6 months of operating opacity data, the Division will review and establish an allowable opacity limitation, not to exceed 20 percent nor be less than 7 percent. The allowable opacity limitation will be incorporated into the Section 30 operating permit for the expansion project. Until such time a reduced opacity limitation is established, the allowable opacity limit shall be set at 20 percent.

13. Solvay will install, calibrate, operate, maintain and report measured emissions from a continuous in-stack monitoring system on the source AQD #80 calciner stack for continuously measuring opacity emissions. The monitoring system shall be installed, calibrated and operated in compliance with the requirements set forth in Section 22(j) of the Wyoming Air Quality Standards & Regulations. Record keeping and excess emissions reporting shall comply with the requirements of Section 22(g) of the Wyoming Air Quality Standards & Regulations. Periods of excess emissions will be defined as any six minute average when the average opacity exceeds the figure defined by condition #12.

14. Solvay will install, calibrate, operate, maintain and report measured emissions from a continuous in-stack monitoring system on the source AQD #82 dryer stack for continuously measuring opacity emissions. The monitoring system shall be installed, calibrated and operated in compliance with the requirements set forth in Section 22(j) of the Wyoming Air Quality Standards & Regulations. Record keeping and excess emissions reporting shall comply with the requirements of Section 22(g) of the Wyoming Air Quality Standards & Regulations. Periods of excess emissions will be defined as any six minute average when the average opacity exceeds the figure defined by condition #12.

15. Solvay will submit the plans and specifications of the control equipment planned for installation under this permit to the Division for final approval, prior to installation.

    For electrostatic precipitators the information required includes the manufacturer and model number for the unit, the fan design exhaust rate (acfm & dscfm), the number of gas paths, the number of precipitator chambers on each path, the number of plates and wires per chamber, the total plate area per chamber, the number of transformer-rectifier energized sections per chamber, the design transport velocity inside each precipitator chamber, the design gas treatment time for the precipitator (seconds), the design electronics parameters (spark rates, and primary/secondary amperages and voltages), the design rapping duration and cycle time, and a three dimension view design drawing of the precipitator.

    For baghouses the information required includes the baghouse manufacturer and model number for the unit, the bag filter area, the fan design exhaust rate (acfm & dscfm), design air/cloth ratio, and a design drawing of the system showing duct layout, system hoods and pickup points, duct sizes and velocity/volume in each leg of the system.

16. As a permit condition, the Division will require that Solvay meet the design specifications and comply with the emission limits for equipment installed under the "D" train project, as considered in this permit analysis. Any alterations to these specifications will be reviewed for acceptability by the Division. If significant changes are made to control equipment or exhaust system parameters, revision to the existing permit emission limits may be made, or a new permit application may be required.

17. All compliance stack testing will be accomplished according to standard Reference Method testing, or other methodology specifically approved by the Administrator of the Air Quality Division. Regarding particulate emission tests, the Division will require utilization of Reference Method 5 sampling trains, with the back half impinger catch analyzed by the protocol defined by Reference Method 202. To determine compliance for any particular stack, the Division will compare the sum of the Reference Method 5 front half particulate catch and the <u>inorganic</u> (mineral) portion of the Reference Method 202 back half of these Method 5/202 tests, against the particulate emission standards set into this permit.

It must be noted that this approval does not relieve you of your obligation to comply with all applicable county, state, and federal standards, regulations or ordinances. Special attention must be given to Section 21 of the Wyoming Air Quality Standards and Regulations, which details the requirements for compliance with conditions 3, 4, 5 and 6. Any appeal of this permit as a final action of the Department must be made to the Environmental Quality Council within sixty (60) days of permit issuance per Section 16, Chapter I, General Rules of Practice and Procedure, Department of Environmental Quality.

If we may be of further assistance to you, please feel free to contact this office.

Sincerely,

Dan Olson
Administrator
Air Quality Division

Dennis Hemmer
Director
Dept. of Environmental Quality

cc: L. Gribovicz

DO/cs

TABLE I

Solvay Trona Plant Pollutant Emission Rate ppm

Page 1/2

Sour Numbe	Equipment Description	Pollutants			
		PM_{10}	SO_2	NO_x	VOC
	Plant Emission Sources				
2a	Ore Crusher Building Baghouse #1	1.60 β	n.a.	n.a.	0.00
6a	Product Silo Top Baghouse #1	0.30	n.a.	n.a.	0.00
6b	Product Silo Reclaim Baghouse #1	0.51	n.a.	n.a.	0.00
7	Product Loadout Baghouse #1	1.20	n.a.	n.a.	0.00
10	Coal Crushing & Storage Baghouse	0.26 α	n.a.	n.a.	0.00
11	Coal Transfer Station Baghouse	0.21 α	n.a.	n.a.	0.00
14	Boiler Coal Bunker Baghouse	0.37 α	n.a.	n.a.	0.00
15	DR-1 & 2 Product Dryers Scrubber	4.34	n.a.	1.20	0.06
16	Dryer Area Housekeeping Baghouse	0.90	n.a.	n.a.	0.00
17	"A" & "B" Gas Fired Ore Calciners	22.30	0.00	30.00	776.00
18	#1 Coal Boiler Scrubber & Prcptr	5.00	70.00	245.00	0.50
19	#2 Coal Boiler Scrubber & Prcptr	5.00	70.00	245.00	0.50
20	Gas & Diesel Storage Tanks	n.a.	n.a.	n.a.	0.02
24	Boiler Flyash Silo Vent Baghouse	0.30	n.a.	n.a.	0.00
25	Alkaten Crushing Area Baghouse	1.00	n.a.	n.a.	0.00
26	DR-3 Alkaten Product Dryer Baghouse	0.55	n.a.	n.a.	0.00
27	Alkaten Product Bagging Baghouse	0.50	n.a.	0.25	0.01
28	DR-4 Fld Bed Product Dryer Scrubber	2.90	n.a.	n.a.	0.00
30	Caustic #1 Lime Bin Baghouse	0.20	n.a.	n.a.	0.00
31	Caustic #2 Lime Bin Baghouse	0.20	n.a.	n.a.	0.00
32	Caustic Evaporator Brmtrc Condenser	0.00	n.a.	n.a.	0.00
33	Sulfite Sulfur Burner Scrubber	n.a.	0.40	1.50	0.00
34	Sulfite Crystallizer	0.00	n.a.	n.a.	0.00
35	Sulfite Product Dryer Scrubber	1.40	n.a.	n.a.	0.00
36	Sulfite #1 Product Bin Baghouse	0.10	n.a.	n.a.	0.00
37	Sulfite #2 Product Bin Baghouse	0.10	n.a.	n.a.	0.00
38	Sulfite #3 Product Bin Baghouse	0.10	n.a.	n.a.	0.00
39	Sulfite #4 Product Bin Baghouse	0.10	n.a.	n.a.	0.00
41	Sulfite Product Loadout Baghouse	0.19	n.a.	n.a.	0.00
42	Sulfite HCl Tank Vent	n.a.	n.a.	n.a.	0.00
43	Sulfite Sulfur Tank Storage Vent	n.a.	n.a.	n.a.	0.00
44	Caustic Lime Delivery Baghouse	0.18 α	n.a.	n.a.	0.00
45	Alkaten Transloading Baghouse	0.20	n.a.	n.a.	0.00
46	#2 Ore Transfer Baghouse	0.71	n.a.	n.a.	0.00
48	"C" Ore Calciner Precipitator	9.30	n.a.	15.00	388.00
50	"C" Train Dryer Area Baghouse	0.70	n.a.	n.a.	0.00
51	DR-5 Product Dryer Precipitator	2.40	n.a.	18.00	0.28
52	Product Silo Top Baghouse #2	0.50	n.a.	n.a.	0.00
53	Product Silo Reclaim Baghouse #2	0.45	n.a.	n.a.	0.00
54	T-200 Product Storage Baghouse	0.19	n.a.	n.a.	0.00
55	Recycle/Reclaim Baghouse	0.40	n.a.	n.a.	0.00

TABLE I
Solvay Trona Plant Pollutant Emission Rates (pph)
(Page 2/2)

Source Number	Equipment Description	Pollutants			
		PM_{10}	SO_2	NO_x	VOC
62	Activated Carbon Bin Vent	0.13	n.a.	n.a.	0.00
63	Perlite Bin Vent Baghouse	0.17	n.a.	n.a.	0.00
64	Sulfite Blending #2 Baghouse	0.08	n.a.	n.a.	0.00
65	Sulfite Blending #1 Baghouse	0.03	n.a.	n.a.	0.00
66	Carbon/Perlite Additive Scrubber	0.58	n.a.	n.a.	0.00
67	Bottom Ash Baghouse	0.47	n.a.	n.a.	0.00
68	Trona Silo/Bagging Machine Baghouse	0.36	n.a.	n.a.	0.00
70	Sulfite Silo/Bagging Machine Baghouse	0.27	n.a.	n.a.	0.00
71	MBS Silo/Bagging Machine Baghouse	0.27	n.a.	n.a.	0.00
72	MBS Soda Ash Feed Bin Vent Filter	0.07	n.a.	n.a.	0.00
73	MBS Product Dryer	0.90	0.77	0.15	0.00
MV	Mine Vent	n.a.	n.a.	n.a.	115.00
76	"D" Train Primary Ore Screening Baghouse	2.45	n.a.	n.a.	0.00
79	Ore Transfer Point Baghouse	0.84	n.a.	n.a.	0.00
80	"D" Ore Calciner Precipitator	12.25	n.a.	20.00	533.50
81	"D" Train Dryer Area Baghouse	0.50	n.a.	n.a.	0.00
82	DR-6 Product Dryer Precipitator	3.45	n.a.	30.00	0.27
83	Product Silo Top Baghouse #3	0.41	n.a.	n.a.	0.00
85	#3 Gas Boiler	0.48	n.a.	3.80	0.27
GRAND TOTAL SOLVAY PLANT REVISED EMISSIONS					
	Grand Total, Solvay Plant Emissions (pph)	88.37	141.17	609.90	1814.40
	Annual Emission Totals (TPY)	384.8 α	618.3	2671.4	7947.1

****** **Footnotes** ******

→ Sources will operate on a schedule of 12 hours/day, therefore annual emissions are based on one half of a year, or 4380 hours operation.

→ Source #2a industrial ventillation system will be modified to include dust collection from pick up points from the existing source #47 cusher baghouse, while #47 is eliminated from the plant inventory. The #2a fan will not be changed, however, and that fan's exhaust air volume will simply be re-apportioned throughout the modified collection ductwork. With the same projected exhaust volume, the existing source #2a particulate emission rate will remain at 1.60 pph.