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*Surface Water Quality Bureau*

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DAVE MARTIN  
Secretary

RAJ SOLOMON, P.E.  
Deputy Secretary

*Certified Mail – Return Receipt Requested*

July 18, 2011

Geoff McMahan, President  
Morningstar Minerals Corporation  
P.O. Box 9  
Farmington, New Mexico 87499

**RE: Minor Non-Municipal, SIC 1499, NPDES Compliance Evaluation Inspection, Morningstar Minerals Corporation / Humate Mill and Manufacturing Facility, Farmington, NMU001743, June 28, 2011**

Dear Mr. McMahan,

Enclosed, please find a copy of the report for the referenced inspection that the New Mexico Environment Department (NMED) Surface Water Quality Bureau (SWQB) conducted at your facility on behalf of the U.S. Environmental Protection Agency (USEPA). This inspection report will be sent to the USEPA in Dallas for their review. These inspections are used by USEPA to determine compliance with the National Pollutant Discharge Elimination System (NPDES) permitting program in accordance with requirements of the federal Clean Water Act.

Problems noted during this inspection are discussed in the Further Explanations section of the inspection report. You are encouraged to review the inspection report, required to correct any problems noted during the inspection, and to modify your operational and/or administrative procedures, as appropriate. Further, you are encouraged to notify in writing, both the USEPA and NMED regarding modifications and compliance schedules at the addresses below:

Diana McDonald  
US Environmental Protection Agency  
Allied Bank Tower  
Region VI Enforcement Branch (6EN-WM)  
1445 Ross Avenue  
Dallas, Texas 75202-2733

Program Manager  
New Mexico Environment Department  
Surface Water Quality Bureau  
Point Source Regulation Section  
P.O. Box 5469  
Santa Fe, New Mexico 87502

I appreciate you and your staff's cooperation during the inspection. If you have any questions about this inspection report, please contact me at 505-827-0418.

Sincerely,

*/s/ Erin S. Trujillo*

Erin S. Trujillo  
Surface Water Quality Bureau

cc: Marcia Gail Adams, USEPA (6EN-AS) by e-mail  
Samuel Tates, EPA (6EN-AS) by e-mail  
Carol Peters-Wagon, USEPA (6EN-WM) by e-mail  
Diana McDonald, USEPA (6EN-WM) by e-mail  
Larry Giglio, USEPA (6WQ-PP) by e-mail  
Jennifer Ickes, NMED District I Manager by e-mail  
Robby Wharton, Production Manager, Morningstar Minerals Corporation by e-mail



Form Approved  
OMB No. 2040-0003  
Approval Expires 7-31-85

### NPDES Compliance Inspection Report

#### Section A: National Data System Coding

Transaction Code	NPDES										yr/mo/day						Inspec. Type	Inspector	Fac Type					
N 2 5 3	N	M	U	0	0	1	7	4	3	11	12	1	1	0	6	2	8	17	18	C	19	S	20	2
Remarks																								
P R O C E S S W A T E R D I S C H A R G E																								
Inspection Work Days						Facility Evaluation Rating						BI		QA		-----Reserved-----								
67						70						71		72		73 74 75 76 77 78 79 80								

#### Section B: Facility Data

Name and Location of Facility Inspected (For industrial users discharging to POTW, also include POTW name and NPDES permit number) Morningstar Minerals Corporation, Humate Mill and Manufacturing Facility, #44 CR 3697, Farmington, New Mexico 87410. San Juan County	Entry Time /Date <b>1213 hours / 06/28/2011</b>	Permit Effective Date Unpermitted
	Exit Time/Date <b>1655 hours / 06/28/2011</b>	Permit Expiration Date Unpermitted
Name(s) of On-Site Representative(s)/Title(s)/Phone and Fax Number(s) Elizabeth C. Astwood, Admin Assistant/Secretary, Morningstar Minerals Corporation, 505-325-2485 Robby Wharton, Production Manager, Morningstar Minerals Corporation, 505-325-2485	Other Facility Data <b>Morningstar Mill Entrance</b> Latitude N. 36.769001°, Longitude W. -108.119634°	
Name, Address of Responsible Official/Title/Phone and Fax Number Geoff McMahan, Morningstar Minerals Corporation, 22 Road 3957, P.O. Box 9, Farmington, New Mexico 87499 / President / 505-325-2485 and fax 505-325-6269	Contacted Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
<b>SIC 1499</b>		

#### Section C: Areas Evaluated During Inspection

(S = Satisfactory, M = Marginal, U = Unsatisfactory, N = Not Evaluated)

U	Permit	N	Flow Measurement	N	Operations & Maintenance	N	CSO/SSO
N	Records/Reports	N	Self-Monitoring Program	N	Sludge Handling/Disposal	N	Pollution Prevention
U	Facility Site Review	N	Compliance Schedules	N	Pretreatment	N	Multimedia
M	Effluent/Receiving Waters	N	Laboratory	N	Storm Water	N	Other:

#### Section D: Summary of Findings/Comments (Attach additional sheets if necessary)

**Filter backwash from an on-site reverse osmosis water treatment system associated with the above-referenced facility flows to a pit/pond then trench then offsite. Heat exchange cooling water had been piped to an irrigation lateral then offsite. Possible pollutants in the process waters could have the potential to discharge to the Animas River during storm events or flooding. This facility did not have NPDES permit coverage for the discharge of backwash and cooling process waters. See attached further explanations and photo log.**

Name(s) and Signature(s) of Inspector(s) <b>Erin S. Trujillo /s/ Erin S. Trujillo</b>	Agency/Office/Telephone/Fax <b>NMED/SWQB/505-827-0418</b>	Date <b>July 18, 2011</b>
Signature of Management QA Reviewer <b>Richard E. Powell /s/ Richard E. Powell</b>	Agency/Office/Phone and Fax Numbers <b>NMED/SWQB/505-827-2798</b>	Date <b>July 18, 2011</b>

**Morningstar Minerals Corporation**  
**Humate Mill and Manufacturing Facility**  
**NMU001743**  
**Compliance Evaluation Inspection**  
**June 28, 2011**

**Further Explanations**

**Introduction**

On June 28, 2011, Erin Trujillo of the New Mexico Environment Department (NMED), Surface Water Quality Bureau (SWQB) conducted a Compliance Evaluation Inspection (CEI) at the Morningstar Minerals Corporation's humate mill, soil conditioner, and mineral supplement manufacturing facility at #44 CR 3697, Farmington, New Mexico 87410 along the Animas River in San Juan County, New Mexico. This inspection followed observations at the site by NMED SWQB Watershed Protection staff of industrial activities and process water discharge during an interagency site visit associated with the facility's New Mexico Mining Act permit application.

NMED SWQB performs a certain number of CEIs each year for the U.S. Environmental Protection Agency (USEPA), Region VI. The purpose of this inspection was to document the operator's compliance with 40 Code of Federal Regulations (CFR) Part 122 and National Pollutant Discharge Elimination System (NPDES) permitting program in accordance with requirements of the federal Clean Water Act.

Morningstar Minerals Corporation (A Consolidated Star Company) is registered in the State of New Mexico for the stated purpose of processing minerals. Morningstar Minerals Corporation's humate mill and manufacturing facility, and Animas Valley Land & Water Co., LLC drinking water treatment plant (formerly operated by Morningstar Domestic Water and Wastewater Users Association, Inc.) is on land owned by the Andrea Corporation. Access to both the drinking water treatment plant and Morningstar Minerals Corporation's mill and manufacturing facility is through a shared entrance. Findings of a CEI conducted at the drinking water treatment plant will be submitted under a separate EPA Form 3560 report for Animas Valley Land & Water Co., LLC (NPDES Tracking No. NMU001744). Findings of a CEI of the Morningstar Minerals Corporation's on-site mill and manufacturing industrial activities to determine compliance with the USEPA Multi-Sector General Permit for stormwater discharges will be submitted under a separate EPA Form 3560 report for Morningstar Minerals Corporation (NPDES Tracking No. NMU001745).

The inspector arrived at the Morningstar Minerals Corporation office, #22 CR 3957, Farmington, New Mexico, at approximately 1213 hours on the day of this inspection. The inspector made introductions, presented credentials and explained the purpose of the inspection to Elizabeth C. Astwood listed agent for the Morningstar Minerals Corporation and Andrea Corporation and Administrative Assistant/Secretary, Morningstar Minerals Corporation and upon his arrival Robby Wharton, Production Manager, Morningstar Minerals Corporation. The inspector and Mr. Wharton traveled to the mill and manufacturing site. Upon arrival at approximately 1300 hours, the inspector first toured the drinking water treatment plant and associated operation areas including the Animas River water intake/gallery with representatives of Animas Valley Land & Water Co., LLC. The inspector explained the purpose of the inspections to Mr. Geoff McMahan, President, Morningstar Minerals Corporation and Andrea Corporation upon his arrival at approximately 1430 hours. Mr. McMahan was present during portions of this inspection. The inspector then toured Morningstar Minerals Corporation operation areas with Mr. Wharton. Following the tour, an exit interview to discuss preliminary findings was conducted with Mr. Wharton. The inspector left the site at approximately 1655 hours on the day of this inspection. Additional information was obtained by telephone from Mr. Wharton on July 14, 2011.

This inspection report is based on information provided by the operator's on-site representatives; observations made by the NMED inspector; records and reports kept by NMED; surface water maps reviewed at the New Mexico Office of the State Engineers in Aztec, New Mexico; and readily available information on internet web sites including <http://www.msminerals.com>. The operator's manufacturing process for the extraction of fulvic minerals from humic substances is considered proprietary by the operator's on-site representatives. As confirmed by Mr. Wharton during the exit interview, no Confidential Business Information was obtained during this inspection.

### **Morningstar Minerals Corporation Activities and Process Water Discharge**

The humate processing mill has been in operation since 2005 according to the operator's on-site representatives. Humate or humic substances from an off-site mine in the San Ysidro/Cuba area in New Mexico is milled and prepared (crushed, pulverized, or otherwise treated) on site. The manufacturing of medicinal chemicals and products (organic compounds fulvic acid and humic acid); and manufacturing or formulating of agricultural soil conditioners from humate is also conducted on site.

In the process of manufacturing supplements, chlorinated drinking water is used in the facility's reverse osmosis (RO) water treatment system. Filter backwash from the RO system is piped to an excavated pit/pond at the adjacent drinking water treatment plant (Photo 1). Peroxide is occasionally used to clean filters, but no cleaning or conditioning chemicals (e.g., acids, bases, phosphates) are used during the RO treatment system backwash according to the operator's on-site representative. The operator's on-site representative estimated that the amount of backwash from the RO treatment system is approximately 35 gallons once a week. A culvert (Photo 4) from the excavated pit/pond allows flow from the pit/pond to enter a man-made ditch or excavated trench (Photo 2) between the drinking water treatment plant and humate mill storage area. The operator's on-site representative stated that this culvert and flow was from the pit/pond. A portion of the trench continued south-southwest off-site and standing water was observed at the Andrea Corporation property boundary (Photo 5 and 6).

During the facility tour, the operator's on-site representative indicated that testing waters were discharged to an irrigation lateral in the eastern portion of the site. Plastic pipe from the facility's processing areas to the irrigation lateral was observed, but testing process water was not flowing to the lateral on the day of this inspection (Photo 3). As part of this on-site testing, water from the Animas River intake/gallery is pumped to an evaporative cooling/heat exchanger. The operator's on-site representative estimated that approximately 4,000 gallons of cooling water per day for ten days in the last six months was piped to the lateral. No conditioning chemicals were used to control algae or corrosion according to the operator's on-site representative; but, additional testing and/or use of the heat exchanger may be needed in the future. Also, the operator's on-site representative stated that chemicals to control algae and/or corrosion may also be needed.

### **Animas River**

Animas River from San Juan River to Estes Arroyo is in Segment 20.6.4.403 of the State of New Mexico Standards for Interstate and Intrastate Surface Waters, 20.6.4 New Mexico Administrative Code (NMAC). This segment includes the designated uses of public water supply, industrial water supply, irrigation, livestock watering, wildlife habitat, marginal coldwater aquatic life, primary contact and warmwater aquatic life. This segment does not support marginal coldwater aquatic life. The listed probable causes of impairment include nutrient/eutrophication biological indicators. Probable sources of impairment include: drought-related impacts, flow alterations from water diversions, municipal (urbanized high density area), municipal point source discharges, and streambank modifications/destabilization. Total maximum daily loads for Total Phosphorus and Total Nitrogen in the Animas River were approved by USEPA on August 26, 2005.

## **Federal Clean Water Act and NPDES Requirements**

Section 301 of the Federal Clean Water Act states: *“Except as in compliance with this section and sections 302, 306, 307, 318, 402 and 404 of this Act, the discharge of any pollutant by any person shall be unlawful.”*

40 CFR Part 122.1 (b) Scope of the NPDES permit requirement states (1) states, *“The NPDES program requires permits for the discharge of ‘pollutants’ from any ‘point source’ into ‘waters of the United States.’ The terms ‘pollutant’, ‘point source’ and ‘waters of the United States’ are defined at § 122.2.”*

Per 40 CFR Part 122.21(a) Duty to apply states (1) states, *“Any person who discharges or proposes to discharge pollutants...must submit a complete application to the Director in accordance with this section and part 124.”*

## **Findings**

This facility did not have NPDES permit coverage for the discharge of backwash and cooling process waters on the date of this inspection.

Filter backwash from an on-site reverse osmosis water treatment system associated with the above-referenced facility flows to a pit/pond then trench then offsite. Heat exchange cooling water had been piped to an irrigation lateral then offsite. Following the trench to the south-southwest and irrigation lateral to the east off-site was not conducted as part of this inspection. However, possible pollutants in the process waters could have the potential to discharge to the Animas River during storm events or flooding.

The facility has not conducted analytical testing of the backwash and cooling process water to determine actual concentrations of possible pollutants (e.g., pH, solids). For example, backwash of the facility’s RO treatment system could contain residual chlorine unless de-chlorinated. As indicated by the operator’s on-site representatives, pollutants from the continued operation of the cooling/heat exchanger may include conditioning chemicals. Examples of pollutants associated with cooling water tower conditioning chemicals include organophosphates, chlorine, bromine, etc.

The USEPA Region 6 NPDES Permit Coordinator can be contacted for more information on how to submit an application for discharges of pollutants under the federal Clean Water Act. Discharges of these types of non-stormwater or process wastewater would not be allowable under existing NPDES General Permit.

NMED/SWQB  
 Approximate Location of Photos  
 Figure 1

Created by: Erin S. Trujillo		
City/County: Farmington / San Juan County	State: New Mexico	
Location: Morningstar Minerals Corporation Mill and Manufacturing Facility		
Aerial Photo Source: San Juan County Assessor On-line 2009 Aerial Photograph w/Parcel Ownership Information		



NMED/SWQB  
Official Photograph Log  
Photo # 1

Photographer: Erin S. Trujillo	Date: 06/28/2011	Time: 1324 hours
City/County: Farmington / San Juan County	State: New Mexico	
Location: Morningstar Minerals Corporation Mill and Manufacturing Facility		
Subject: Pipe with process water backwash from RO at pit/pond at adjacent water treatment plant. Black solids in pond is humate from mill operations runoff/dust.		



NMED/SWQB  
Official Photograph Log  
Photo # 2

Photographer: Erin S. Trujillo	Date: 06/28/2011	Time: 1406 hours
City/County: Farmington / San Juan County	State: New Mexico	
Location: Morningstar Minerals Corporation Mill and Manufacturing Facility		
Subject: Trench along water treatment plant/mill boundaries. Black solids in trench is humate.		



**NMED/SWQB  
Official Photograph Log  
Photo # 3**

Photographer: Erin S. Trujillo	Date: 06/28/2011	Time: 1558 hours
City/County: Farmington / San Juan County		State: New Mexico
Location: Morningstar Minerals Corporation Mill and Manufacturing Facility		
Subject: Pipe at irrigation lateral at east portion of site. No cooling water flow observed on day of this inspection.		



**NMED/SWQB  
Official Photograph Log  
Photo # 4**

Photographer: Erin S. Trujillo	Date: 06/28/2011	Time: 1624 hours
City/County: Farmington / San Juan County		State: New Mexico
Location: Morningstar Minerals Corporation Mill and Manufacturing Facility		
Subject: Culvert from pond shown in Photo 1 w/flow entering trench. Black solids in culvert and trench is humate.		



NMED/SWQB  
Official Photograph Log  
Photo # 5

Photographer: Erin S. Trujillo	Date: 06/28/2011	Time: 1631 hours
City/County: Farmington / San Juan County	State: New Mexico	
Location: Morningstar Minerals Corporation Mill and Manufacturing Facility		
Subject: Looking east at slow moving and/or standing water in trench.		



NMED/SWQB  
Official Photograph Log  
Photo # 6

Photographer: Erin S. Trujillo	Date: 06/28/2011	Time: 1632 hours
City/County: Farmington / San Juan County	State: New Mexico	
Location: Morningstar Minerals Corporation Mill and Manufacturing Facility		
Subject: Looking west/southwest at standing water in trench at property boundary.		

