

NEVADA DIVISION OF ENVIRONMENTAL PROTECTION

FACT SHEET

(Pursuant to NAC 445A.236)

Martin Marietta Materials, Inc. – NEV2004502 Spanish Springs Quarry May 2004

PERMITTEE NAME: Martin Marietta Materials, Incorporated

PERMIT NUMBER: NEV2004502 – New Issue

LOCATION: 11059 State Route 445
Sparks, Washoe County, Nevada 89436

Latitude: 39°41'00" North
Longitude: 119°43'08" West
Section 15, Township 21 North, Range 20 East, M.D.B.&M.

PUBLIC WATER SUPPLY: Not within a well protection zone
Municipal water supply well reported within the same township, range, and section, per Division of Water Resources database; however, the operating status of this well cannot be confirmed.

FLOW: 0.03 Million gallons per day (MGD); 500 gallons per minute

GENERAL:

Martin Marietta Materials, Inc. operates an aggregate quarry west of State Route 445 (Pyramid Highway) in Spanish Springs, Washoe County, Nevada. Water from an on-site well is pumped to an existing 500,000-gallon water tank, which feeds to two (2) separate vaults located at the plant. Water from the vaults is directed to various facilities to wash equipment and aggregate, or for dust control.

Wash water is collected at two (2) sump locations and is piped to a bank of cyclones, which discharge to a 30,000-gallon clarifier. A portion of the water from the clarifier is recycled back to the plant and the remainder is transferred to an unlined, 18.2 million-gallon settling/evaporation/percolation pond. After adequate settling, some of the water in the pond is recycled back for reuse in the plant. While the settling/evaporation/percolation pond is unlined, fine sediment that settles to the bottom of the pond is expected to impede percolation. Groundwater monitoring wells will be installed and periodically monitored to confirm pond storage of clarified water does not deteriorate groundwater quality.

DISCHARGE CHARACTERISTICS:

Minerals and dissolved metals are presumed to be the primary constituents that may affect water used for washing and dust control purposes. The mineral profile of clarified water indicates a total dissolved solids (TDS) concentration of 390 milligrams per liter (mg/L), pH at 7.95 standard units, nitrate as nitrogen at 2.9 mg/L, and chloride at 9.0 mg/L. Analysis for the list of Nevada Profile I metals rendered concentrations of most metals below primary drinking water standard maximum contaminant levels (MCLs), with the exception of lead and arsenic. The lead concentration in clarified water is quantified at 0.049 mg/L, and the arsenic concentration, while below method detection limits, is qualified as below 0.030 mg/L (less than detection limits), which is above the 0.010 mg/L MCL and therefore cannot be negated from further consideration. Concentrations of beryllium (0.0037 mg/L), chromium (0.070 mg/L), and mercury (0.0012 mg/L), while quantified below MCLs of 0.004, 0.1,

and 0.002 mg/L, respectively, are sufficient to warrant further examination throughout the term of the permit.

RECEIVING WATER CHARACTERISTICS:

The discharge is considered a discharge to groundwater from either percolation at the settling pond or from dust control efforts. Water quality characteristics of clarified water suggests that groundwater in the area is of relatively good quality, and is encountered at a depth of approximately 130 to 150 feet below grade surface (bgs; 4450 to 4430 feet above mean sea level). The bottom of the pond is at grade surface, approximately 4580 feet above mean sea level.

Public municipal supply well locations extracted from the Environmental Information Management System maintained under the Source Water Assessment Program indicated the nearest public water system supply well approximately 1.88 miles to the south-southeast of the aggregate facility. However, the Division of Water Resources database lists two (2) wells within the same section, township, and range as the aggregate plant. A well listed as belonging to the Spanish Springs Association is recorded for use as a public supply-municipal well, and a well listed as belonging to a private owner is recorded for use as a domestic supply well.

The groundwater gradient and flow direction in the immediate proximity of the settling/evaporation/percolation pond is not reported in application information, and is considered unknown. Consequently, the presence of municipal or domestic supply wells within a relatively close proximity of the aggregate plant warrants groundwater monitoring measures to ensure that percolated water from the storage pond does not adversely impact the inherent quality of groundwater within the area.

PROPOSED LIMITATIONS:

The generally good quality of clarified wash water warrants groundwater monitoring, but unless groundwater conditions exhibit impact, additional treatment before discharge to either the settling pond or for dust control purposes is not justified. Consequently, effluent discharge limitations and groundwater monitoring requirements focus on data collection for review and iterative assessment purposes, as opposed to confirmation of water quality control measures.

Consistent with this objective, installation of three (3) monitoring wells and integration of these wells into a groundwater monitoring program is required to verify the characteristic profile of groundwater up and downgradient of site activities and percolation areas. The wells shall be configured to allow triangulated interpretation of groundwater gradient and flow direction. Graphic and numeric presentations of groundwater gradient and flow direction shall be rendered semi-annually.

Effluent Discharge Limitations:

During the period beginning on the effective date of this permit and lasting until the permit expires, the Permittee is authorized to discharge from:

- Outfall 001: Discharge to settling/evaporation/percolation pond
- Outfall 002: Discharge for dust control

Effluent samples and/or measurements taken in compliance with the monitoring requirements specified below shall be collected at:

- EFF: At the discharge of the clarifier

The discharge of clarified wash water shall be limited and monitored as follows:

EFFLUENT LIMITATIONS

PARAMETERS	MONITORING REQUIREMENTS				
	30-Day Average	Daily Maximum ¹	Sample Location	Measurement Frequency ²	Sample Type
Flow Rate (MGD)	0.3	0.3	EFF	Continuous	Meter
Dust Control Volume (gallons)	Monitor & Report	Monitor & Report	----	Daily	Calculation (truck log)
Total Petroleum Hydrocarbons (mg/L)	----	1.0	EFF	Quarterly	Discrete
Total Dissolved Solids (mg/L)	----	Monitor & Report	EFF	Quarterly	Discrete
Arsenic (mg/L)	----	Monitor & Report	EFF	Quarterly	Discrete
Beryllium (mg/L)	----	Monitor & Report	EFF	Quarterly	Discrete
Chromium (mg/L)	----	Monitor & Report	EFF	Quarterly	Discrete
Lead (mg/L)	----	Monitor & Report	EFF	Quarterly	Discrete
Mercury (mg/L)	----	Monitor & Report	EFF	Quarterly	Discrete
Profile I ³	----	Monitor & Report	EFF	Annually ⁴	Discrete

MGD: Million gallons per day
 GPD: Gallons per day
 mg/L: Milligrams per liter

Footnotes:

- 1: The analytical detection limits must be at or below MCLs (e.g. arsenic at or below 0.010 mg/L).
- 2: Sampling and analysis frequencies may be reduced at the discretion of the Nevada Division of Environmental Protection Bureau of Water Pollution Control upon empirical demonstration by the Permittee that effluent quality characteristics are stable and unlikely to cause or contribute groundwater quality characteristics in excess of primary drinking water standard MCLs.
- 3: The list of Profile I analytes is included in Attachment A.
- 4: Analysis shall be conducted during the 4th quarter, and the results reported in the 4th quarter Annual Report.

Rationale:

Flow Rate/Dust Control Volume: The flow rate is limited to the flow rate anticipated by the applicant. Flow rate will also be restricted by the requirement to maintain a 2-foot freeboard in the settling/evaporation/percolation pond. The volume of clarified water used for dust control purposes is also required to be reported to verify appropriate management of the authorized discharge.

Total Petroleum Hydrocarbons (2.5 pounds per day): This limitation is required to limit the discharge of

petroleum-related compounds that may persist in wash water used for equipment.

Total Dissolved Solids, Arsenic, Beryllium, Chromium, Lead, and Mercury: These analytes are required to be monitored in the discharge to assess variability over time and to ensure that unanticipated increases in these particular constituent concentrations do not cause groundwater impacts.

Profile I: Annual analysis of the Profile I constituent list is required to reconfirm discharge characteristics and to verify that quarterly monitoring parameters are sufficient.

Groundwater Monitoring:

Groundwater monitoring is required to assess hydraulic impacts associated primarily with percolation from the unlined pond. While effluent characteristics are not expected to diminish groundwater quality, periodic monitoring is necessary to verify the adequate attenuation of water that may percolate into the shallow aquifer environment.

Wells shall be monitored in accordance with permit conditions and standard industry practices. Should site monitoring activities necessitate or warrant the installation of monitoring wells in addition to those required by the conditions of the proposed permit, additional wells shall be incorporated into the required monitoring schedule. Plans and specifications for monitoring wells proposed or required must be designed and constructed in general accordance with "WTS-4: Monitoring Well Design Requirements" (NDEP, February 1997). Construction plans and specifications must be submitted to the Division for review and must receive Division approval prior to installation.

Each monitoring well shall be measured and sampled according to the following parameters:

GROUNDWATER MONITORING REQUIREMENTS

PARAMETERS	GROUNDWATER LIMITATIONS ¹	MONITORING WELL LOCATIONS	MONITORING REQUIREMENTS	
			Measurement Frequency ^{2,3}	Sample Type
Depth to Water (feet)	Monitor & Report	MW-1, 2, & 3	Semi-annually	Discrete
Groundwater Elevation (msl)	Monitor & Report	MW-1, 2, & 3	Semi-annually	Discrete
pH (SU)	Monitor & Report	MW-1, 2, & 3	Semi-annually	Discrete
Total Dissolved Solids (mg/L)	Monitor & Report	MW-1, 2, & 3	Semi-annually	Discrete
Arsenic (mg/L)	Monitor & Report	MW-1, 2, & 3	Semi-annually	Discrete
Beryllium (mg/L)	Monitor & Report	MW-1, 2, & 3	Semi-annually	Discrete
Chromium (mg/L)	Monitor & Report	MW-1, 2, & 3	Semi-annually	Discrete
Lead (mg/L)	Monitor & Report	MW-1, 2, & 3	Semi-annually	Discrete
Mercury (mg/L)	Monitor & Report	MW-1, 2, & 3	Semi-annually	Discrete
Profile I ⁴	Monitor & Report	MW-1, 2, & 3	Annually ⁵	Discrete

msl: Mean sea level (above)
mg/L: Milligram per liter
SU: Standard units

- 1: Analytical detection limits must be at or below MCLs.
- 2: Sampling frequency may be modified or reduced, in whole or in part, at the discretion of the Division, upon demonstration of groundwater concentrations or conditions which warrant or justify alternative monitoring schedules.
- 3: Samples shall be collected in October and April and reported in the Discharge Monitoring Report corresponding to the specified time period.
- 4: The list of Profile I analytes is included in Attachment A.
- 5: Analysis shall be conducted during the 4th quarter, and the results reported in the 4th quarter Annual Report.

SCHEDULE OF COMPLIANCE:

The Permittee shall implement and comply with the provisions of the permit upon issuance and the following schedule of compliance including in said implementation and compliance, any additions or modifications the Administrator may make in approving the schedule of compliance.

- **Upon issuance of the permit**, the Permittee shall achieve compliance with all discharge limitations;
- **Within 30 days of the permit issuance date (date)**, the Permittee shall submit a design and installation plan to the Division for the construction of three (3) groundwater monitoring wells. Wells shall be located in a triangular configuration across the site, such that groundwater quality can be assessed from presumed perspectives of up and downgradient of the settling pond. In order to satisfy this requirement, proposed plans for the construction of these wells must receive approval from the Division before execution.

The plan must include a scaled map illustrating the proposed locations for the wells, narrative and graphic construction specifications, and well development (within 72 hours of installation) and sampling procedures. Wells shall be designed in accordance with "WTS-4: *Monitoring Well Design Requirements*" (NDEP, February 1997) and constructed with a screened interval that intercepts the phreatic surface of groundwater and extends between depths sufficient to monitor groundwater during periods of excessive recharge and drought.

A professional engineer licensed in the State of Nevada must stamp and sign all plan designs and proposal specifications. Wells shall be installed within 45 days of Division approval of the proposed plans and specifications.

- **Within 45 days of well installation**, the Permittee shall submit a Well Construction Report that includes copies of all relevant permits, a description of field observations and conditions, as-built construction drawings, boring logs, surveyed top-of-casing elevations, groundwater elevations, a scaled map depicting the well locations relative to other facility wells and irrigation features, and an isocontour map illustrating groundwater gradient and flow direction.

DISCHARGE MONITORING REPORTS:

All analytical data compiled as a function of the discharge limitations or groundwater monitoring shall be reported to the Division in quarterly Discharge Monitoring Reports (DMR)s. Groundwater contour maps illustrating flow direction and quantitatively specifying the groundwater gradient shall be submitted semi-annually with the

corresponding DMR and shall reflect groundwater conditions measured during the respective monitoring period.

PROPOSED DETERMINATION:

The Division has made the tentative determination to issue the proposed permit, under the provisions prescribed, for a 5-year period. Under NAC 445A.232, this permit is classified as a *Discharge from Remediation, Dewatering, other than a discharge to ground water from the dewatering of a mine, or from a Power Plant, a Manufacturing or Food Processing Facility or any other Commercial or Industrial Facility, 250,000 gallons or more but less than 500,000 gallons daily.*

PROCEDURES FOR PUBLIC COMMENT:

Notice of the Division's intent to issue a permit authorizing the facility to discharge to ground water of the State of Nevada, subject to the conditions contained within the permit, is being sent to the **Reno Gazette Journal** for publication. Notice is also mailed to interested persons on our mailing list. Anyone wishing to comment on the proposed permit can do so in writing for a period of 30 days following the date of the public notice, and must be postmarked, faxed, or e-mailed by 5:00 p.m. on **June 18, 2004**. The comment period can be extended at the discretion of the Administrator. A public hearing on the proposed determination can be requested by the Applicant, any affected State, any affected interstate agency, the Regional Administrator, or any interested agency, person, or group of persons. The request must be filed within the comment period and must indicate the interest of the person filing the request and the reason(s) why a hearing is warranted.

Any public hearing held by the Administrator will be conducted in the geographical area of the proposed discharge or any other area the Administrator determines to be appropriate. All public hearings will be conducted in accordance with NAC 445A.238. The final determination of the Administrator may be appealed to the State Environmental Commission pursuant to NRS 445A.605.

Prepared by:

Tamara J. Pelham
May 19, 2004

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