



Department of Energy

Carlsbad Area Office
P. O. Box 3090
Carlsbad, New Mexico 88221

August 4, 2000



Ms. Debbie Brinkerhoff, Program Manager
Compliance and Technical Assistance Program
New Mexico Environment Department
Hazardous Materials Bureau
P.O. Box 26110
Santa Fe, NM 87502-6110

Subject: Response to Notice of Violation, NM4890139088

Dear Ms. Brinkerhoff:

The purpose of this letter is to respond to the Notice of Violation (NOV), NM4890139088, received from the New Mexico Environment Department (NMED), dated July 7, 2000, by providing the requested information. In this NOV, NMED requested that three actions be taken by the Department of Energy (DOE) and Waste Isolation Division (WID). What follows is a brief summary of each of these three requests and our response.

1. Monitor the accumulation volume and the regulatory status of the Exhaust shaft Catch Basin liquid.

The accumulation and pumping of Exhaust Shaft brines have been and are tracked on an as generated basis. This information is maintained at the Waste Isolation Pilot Plant Operations Office and is available for NMED review.

2. Provide an Annual Liquid Accumulation Report for the next three years.

There was no specific schedule provided by NMED in its July 7, 2000, NOV. DOE, therefore, proposes to submit the annual report beginning the end of calendar year 2000, and annually for the next three years. The first annual report will summarize the accumulation of the Exhaust Shaft Catch Basin brines for the period January 1- December 31, 2000. We will submit each year's report by January 31st of the following year. Each successive report will follow the same schedule.

3. Project the expected accumulation of a 25-Year/24-Hour Rain Event and provide the NMED this information within thirty days.



Ms. Debbie Brinkerhoff

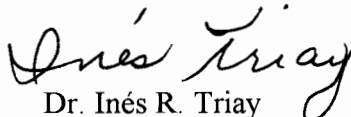
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The volume of a 25-year/24-hour rain event at the WIPP was calculated using the National Weather Service's Western U.S. Precipitation Frequency Map. Storm water at the WIPP is diverted into a series of permitted diversion ditches and evaporation basins managed under the WIPP NPDES Storm Water Industrial Permit. A calculation of the total precipitation from a 25-year/24-hour storm event accumulated in the WIPP NPDES Storm Water collection basins is provided in the attachment.

If you have any questions regarding this information, or require any additional information, please contact Ms. Cynthia Zvonar at (505) 234-7495.

Sincerely,


Dr. Inés R. Triay
Manager

cc:

J. Plum, CAO
C. Zvonar, CAO
J. Epstein, WID
K. Donovan, WID
D. Robertson, WID

Determination of Flow using the Rain Gauge Technique

25- year/24-hour storm event measurement in inches of precipitation obtained from the National Weather Service's Western U.S. Precipitation Frequency Maps available on the web @ www.wrcc.dri.edu/pcpnfreq.html.

The estimated 25 -year/24-hour storm event maximum flow was calculated as follows:

$$Q.s. = C \times I \times Ad \times (60/T)$$

Where:

Q.s. = Sample period's flow rate in cubic feet per second (cfs)

C = The drainage area specific runoff coefficient (C) is calculated as follows:

The area type runoff (C) described in the NMED guidelines:

Pervious Surfaces(grass, dirt) = 0.72

Non-pervious Surfaces (pavement, concrete, roofs) = 0.95

$$C = \frac{\text{Percentage of Area that is Pervious} \times 0.72}{100} + \frac{\text{Percent of Area that is Non-pervious} \times 0.95}{100}$$

I= The total inches of rain for the 25/year/24-hour storm event from the National Weather Service Western U.S. Precipitation Frequency Maps

Ad= The drainage area in acres (1 acre = 43,560 ft²)

T= Sample period (time between rain gauge readings) in minutes

To calculate 25-year/24-hour storm flows from Q.s. (flow in cfs) to Acre/Feet (ac/ft) use the following conversion:

$$\text{Acre/Feet} = \text{Q.s.} \times 448.831 \times 1440 + 326,264$$

$$\text{Flow in gallons per minute (GPM)} = \text{Q.s.} \times 448.831$$

$$\text{Gallons of Flow} = \text{GPM} \times 1440 \text{ (minutes in a day)}$$

$$\text{Acre/Feet} = \text{Total Gallons of Flow} + 326,264$$

Determination of Flow using the Rain Gauge Technique

Southeast (SE) Area

275,800 total ft ²	6.3 acres
113,351 ft ² pervious	41% of total area 2.6 acres
<u>161,449</u> sq/ft non-pervious	59% of total area <u>3.7</u> acres

State Coefficient

$$(41+100) \times 0.72 + (59+100) \times 0.95 = 0.86$$

$$\text{Q.s.} = 0.86 \times 4.0 \times 6.3 \times 0.0417 = 0.90 \text{ cfs}$$

$$0.90 \text{ cfs} \times 448.831 = 403.9 \text{ GPM}$$

$$403.9 \text{ GPM} \times 1440 \text{ min.} = 581,616 \text{ gallons} + 326,264 = \underline{1.78} \text{ ac/ft}$$

Southwest Area

123,600 ft ² non-pervious	<u>2.84</u> acres
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State Coefficient

$$(100 + 100) \times 0.95 = 0.95$$

$$\text{Qs} = 0.95 \times 4.0 \text{ in.} \times 2.84 \times 0.0417 = 0.45 \text{ cfs}$$

$$0.45 \text{ cfs} \times 448.831 = 202.0 \text{ gpm}$$

$$202.0 \text{ gpm} \times 1440 \text{ min.} = 290,880 \text{ gallons} + 326,264 = 0.89 \text{ ac/ft}$$

North Area

847,643 total sq/ft	19.46 acres
388,970 ft ² pervious	46% of total area 8.93 acres
458,673 ft ² non-pervious	54% of total area 10.53 acres

State Coefficient

$$(46+100) \times 0.72 + (54+100) \times 0.95 = 0.84$$

$$Q_s = 0.84 \times 4.0 \times 19.46 \times 0.0417 = 2.73 \text{ cfs}$$

$$2.73 \text{ cfs} \times 448.831 = 1225.3 \text{ gpm}$$

$$1225.3 \text{ gpm} \times 1440 \text{ min.} = \mathbf{1,764,432 \text{ gallons}} + 326,264 = \mathbf{5.41 \text{ ac/ft}}$$