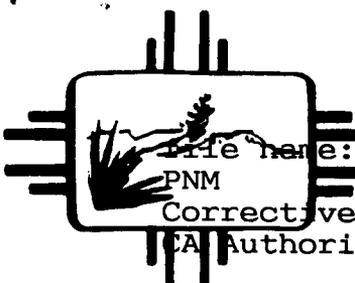


PNM 90

New Mexico Health and Environment Department



File name:
PNM
Corrective Action
CA Authority

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Governor

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Secretary

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MEMORANDUM

TO: Kathleen Sisneros, Bureau Chief
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Inspection and Enforcement Section

FROM: *fw* Julie Wanslow, Water Resource Specialist III
Inspection and Enforcement Section

DATE: December 6, 1990

SUBJECT: Recommendation to compel PNM Person Generating Station
into corrective action using a 74-4-10.1 enforcement
order and to terminate PNM's post-closure permit

Summary:

EID would like to compel PNM into a corrective action program to address their groundwater contamination. The corrective action program will be divided into three phases: RCRA Site Investigation (RSI), Corrective Measures Study (CMS), and Corrective Measures Implementation (CMI). The RSI requires the investigation of the nature and extent of the contaminated media (e.g., groundwater, soil, etc.). These goals can be accomplished through an enforcement action or through the permit.

I recommend EID require PNM to complete the RSI portion of a corrective action program through a 74-4-10.1 enforcement action instead of through the permit because EID would not be able to compel the RSI through the permit in a timely manner. If a 74-4-10.1 order is issued, the RSI could be completed within 1-1.5 years. However, if the RSI is compelled through the permit, the RSI would not be completed for at least 2-2.5 years. Before we compel the RSI through the permit we would need to modify the permit to make it protective of human health and the environment. Extra time will be needed for the permit modification, public comment period, a possible public hearing, and a possible appeal by PNM.

This delay would allow a major "slug" to continue to spread

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contamination above health based standards off-site in a drinking water aquifer for at least 2-2.5 years which is not protective of human health and the environment.

I also recommend that EID terminate PNM's permit when the 74-4-10.1 order is issued because it would be a hardship on PNM to comply with both the permit and the RSI requirements when we are only interested in the RSI requirements. Our legal staff indicates that the RSI can legally contradict the requirements of the permit. However, I believe it would be unfair, confusing, and costly to require PNM to comply with both sets of requirements.

While PNM is completing the RSI, we will reissue the new permit which will include the necessary modifications as well as the RSI, CMS, and CMI.

Terminating and reissuing the permit will be easier than modifying the permit. Termination of the permit only requires that we demonstrate that "the permitted activity endangers human health or the environment and can only be regulated to acceptable levels by permit modification or termination". (We have new information that indicates that the permit is not protective of human health and the environment.) If we modify the permit we must have a separate justification for every single change. This would be very resource intensive because approximately 90% of the permit needs modification.

Enforcement Action:

A 74-4-10.1 order should be issued to require the completion of a RSI as soon as possible. This order requires evidence of substantial hazard to human health or the environment. We could demonstrate substantial hazard because the contaminants in the groundwater are above the EPA MCLs.

The 74-4-10.1 order is equivalent with EPA's 3013 order. This order states that

"If the director determines, upon receipt of any information, that:

- (1) the presence of any hazardous waste at a facility or site at which hazardous waste is or has been stored, treated, or disposed of; or
- (2) the release of any such waste from such facility or site may present a substantial hazard to human health or the environment,

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he may issue an order requiring the owner or operator of such facility to conduct such monitoring, testing, analysis and reporting with respect to such facility or site as the director deems reasonable to ascertain the nature and extent of such hazard."

Modification of the Permit:

If we compel PNM to complete a RSI through the permit, we would have to modify the permit first because the RSI would contradict the terms of the corrective action program and other items in the permit. The corrective action portion of the permit is very vague and does not specify what constitutes an adequate RSI and what EID will do if the facility does not submit an adequate RSI. In fact, it does not even mention RSI, CMS, or CMI. In addition, the permit specifies that the corrective action program must include certain items that we do not want included, (e.g. Module III, Section F.6.b, c, d). These items are described below.

1. Module III, Section F.6.b. specifies that the corrective action program must address "all hazardous waste constituents identified by the Detection Monitoring Program and/or the Compliance Monitoring Program as exceeding the levels identified in the designated wells". The "levels identified in the designated wells" refers to the ACLs or MCLs that were granted in the permit for each well. In other words, the permittee only has to address hazardous waste constituents identified in the Detection or Compliance Monitoring Programs that were above the ACLs. Hazardous waste constituents are those listed in Table 1 of Section 261.24 and Appendix VII of Section 261.

Section F.6.b. will conflict with the RSI in the following ways. The permit regulations (Section 264) and the RSI require the analyses of "hazardous constituents" which are those constituents listed in Section 264, Appendix IX, instead of Appendix VII constituents. In addition, the RSI will require PNM to determine the extent of the groundwater plume which will require PNM to address all Appendix IX constituents above the detection limits. This will require PNM to address constituents whose levels are below the ACLs or MCLs granted in the permit. EID defines "extent" as the point at which there are no Appendix IX constituents above the detection limits. Also, the RSI will require that PNM periodically analyze for the full list of Appendix IX constituents, not just the constituents identified during the Detection and Compliance Programs. EID will require

this because the permit regulations under Section 264 do not limit the Corrective Action Program to constituents that were detected during the Detection and Compliance Monitoring Programs. Thus, the RSI will require PNM to address new constituents if they are detected during corrective action.

2. Module III, Section F.6.c. states that the corrective action program must address "all hazardous waste constituents which have passed the point of compliance defined in the permit paragraph II.J.3." The point of compliance is where the ACLs or MCLs apply and is the eastern property boundary. This means that PNM cannot exceed the ACLs beyond the point of compliance but can exceed the ACLs within the point of compliance.

Section F.6.c. would interfere with the investigation of the extent of the plume because the permit indicates that PNM only has to investigate the on-site or off-site portion of the plume that is above the ACLs. Whereas the RSI will require PNM to investigate on-site and off-site contamination below the ACLs. In addition, PNM only has to address "hazardous waste constituents" that have passed the point of compliance and the RSI will require PNM to analyze for "hazardous constituents" or Appendix IX constituents.

The permit must be modified in order to address the chromium contamination, to change the groundwater protection standards (MCLs or ACLs) granted in the permit, to change the point of compliance, to change the calculation of background levels, and to include adequate sampling and analysis procedures, etc.

EID granted permit MCLs for PCE, DCE, and TCA that were above the EPA MCLs based on the assumption that the plume was not migrating off-site and was not increasing in concentration but was instead slowly dispersing. Based on these assumptions, the permit MCLs were believed to be protective of human health and the environment. New information indicates that these assumptions are not valid and therefore, EID believes that the permit is no longer protective of human health and the environment.

Details of the Plume:

Beginning in October 1989, the groundwater data from PNM Person Generating Station monitor well PSMW-8A indicated that a major plume of contamination was moving in an easterly direction beyond their property boundary. Lower concentrations of constituents have migrated beyond the northern and eastern boundaries in the past, however, a major "slug" is currently moving beyond the

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eastern boundary. There is potential to use this contaminated water for drinking water because the plume is located in a drinking water aquifer and there are 25 water supply wells within a one mile radius of the facility. In addition, the plume is located within 1.5 miles of Albuquerque water supply well fields. Based on groundwater velocity data and historical flow directions certain water supply wells could be affected by off-site contamination.

The plume contains perchloroethylene (PCE), 1,1-dichloroethene (DCE), 1,1,1-trichloroethane (TCA), and total chromium. All of these constituents are above the EPA MCLs or drinking water standards except for TCA. Two wells at PNM's property boundary evidence contamination: PSMW-8A and PSMW-6.

Historical groundwater flow directions indicate that the groundwater flowed south in the 1960's, and has gradually shifted to the east-southeast in the 1980's. The groundwater flows to the east at PSMW-8A and PSMW-6. The direction of groundwater flow shifts to the southeast toward the southern portion of the facility.

Pump tests have been conducted on monitor wells PSMW-1, 2, 3, 6, and 8A. However, in 1985 EID discounted this data and required PNM to install pump test wells in order to redetermine the hydraulic conductivity and velocity values. Two pump test wells were installed: PT-1 and PT-3. The PT-1 velocity values range from 4 feet per year to 73 feet per year and velocity values from PT-3 range from 347 feet per year to 2312 feet per year. PT-1 was located near the waste tank and PT-3 was located between PSMW-6 and 8A, and downgradient from the source of the plume, and 100 feet from the eastern boundary. The major portion of the plume appears to be moving toward and past PT-3. The velocity of the plume is lower near the PNM waste tank area and increases significantly in the downgradient direction toward the eastern boundary.

Camp Dresser McKee conservatively assumed in their 1985 Phase V Program Report that the groundwater at PNM has been contaminated since 1977. (We know that the PSMW-8A and PSMW-6 were contaminated when they were first sampled in early 1984.) We have no groundwater quality information from PT-1 or PT-3 because PNM never sampled these wells for hazardous constituents. As a worst case or conservative scenario, if the groundwater is moving 2312 feet per year, then the plume has migrated 30,056 feet (5.7 miles) from the PNM waste tank area since 1977. A less conservative approach would be to average these velocities (4, 73, 347, and 2312 feet per year) to come up with an average velocity of 684 feet per year. Using the average velocity, the plume may have moved 8892 feet (1.7 miles) from the PNM waste

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tank area since 1977. The velocity of the groundwater probably increases toward the north and the east because the aquifer is known to be highly permeable and productive in these areas.

The closest well (Well P) is a domestic water supply well located approximately 600 feet south-southwest of the PNM waste tank area. Well P appears to be sidegradient of the plume and thus contamination of Well P appears unlikely. However, we do not know the extent of the plume to the west or southwest because there are no monitor wells located on the western property boundary and PSMW-4 which is located near the southwest corner of the facility is not being monitored. Additionally, contamination does not always follow the direction of groundwater flow, and the 1985 soil gas survey indicated soil gas contamination to the west and south-southwest.

The closest downgradient wells which have the most potential for being affected by the plume are the PNM water supply wells. PNM did not include their water supply wells (#1, #3, #4, #5, #6) on the map that they submitted to EID, but these wells are indicated on maps supplied by the Camp Dresser McKee 1985 Phase V Report. However, the exact location of the PNM production well #5 and #6 is unclear. The Phase V Program Report includes different maps that alternately depict the same well as #5 and #6. PNM production wells #3, #4 and #6 appear to be located approximately 1400 feet east of the PNM waste tank area. Production wells #4 and #6 appear to be directly downgradient of the plume. Production Wells #1 and #5 appear to be located sidegradient of the plume near PNM's southern property boundary.

The closest downgradient non-PNM well is Well R which is a domestic/sanitary and golf course irrigation well. Well R is located approximately 0.87 miles (4600 feet) northeast of the PNM waste tank area and appears to be directly downgradient of the plume.

According to a 1987 map, the closest Albuquerque water supply wells are located to the north and the north-northeast of the facility. The zone of well influence of the San Jose Well Field (San Jose wells #1, #4, #5) is located approximately 1.25 miles (6600 feet) to the north. The zone of well influence of the Miles Well Field (Miles well #1) is located approximately 1.50 miles (7920 feet) to the north-northeast.

Based on the groundwater velocities discussed above, EID needs to require PNM to identify all water supply wells within a two mile radius including their own production wells. In addition, EID needs to require PNM to sample the groundwater from Well P, Well R, and perhaps the PNM production wells east of the facility depending on the location and length of the screens.