PNM
Rule 116
Comments

Environmental Fax Cover Page

To: Rand Carroll	For Information Call: Toni K. Ristau
From : Toni K. Ristau	At: (505) 241-2015
Pages: 10	Fax Number : (505) 241-2340

Rand -- this is "take 2" on sending this FAX; apparently, the first one did not go through. Attached are my additional comments for the record related to Rules 7, 19, and 116 (per the November 14 hearing). I am also sending this info to you via first class mail; the mailed transmittal will include the Lawrence Livermore study and supporting information as well.

Please make sure the attached information is properly entered on the record. If you have any questions or do not receive the entire fax, please call me at the above number.

Thanks --

November 27, 1996

SENT VIA FAX AND FIRST CLASS MAIL
Fax at: (505) 827-8177

MEMORANDUM

To: Rand Carroll, OCD Legal Counsel
Oil Conservation Division
New Mexico Energy, Minerals and Natural Resources Department

From: Toni Ristau, Director
Environmental Services Department
Public Service Company of New Mexico

Re: Oil Conservation Commission Hearing, November 14, 1996
Follow up Information

Per your request at the OCC hearing on November 14, 1996, I am sending you a copy of the Lawrence Livermore National Laboratory/University of California study related to hydrocarbon contamination in soils and groundwater from leaking fuel tanks. The LLNL study makes three primary recommendations:

(1) Passive bioremediation should be used as a remediation alternative wherever possible.

(2) State water quality policies should be modified to allow the use of risk-based decision making (and risk-based cleanup goals that are higher than the numerical standards) for leaking fuel tank cleanups.

(3) The state should employ risk-based decisionmaking (specifically, a modified Risk-Based Corrective Action, or RBCA, approach) for cleanups that emphasize passive bioremediation.

These recommendations are based upon the following findings:

(1) In California, less than one-half of one percent of the state's leaking fuel tank cases have affected drinking water wells.

(2) Most of the aquifers that have been impacted in California are shallow ground water, which are of too poor quality for use as drinking water; the deeper aquifers, which are used for drinking water supplies, are adequately protected by well construction standards.

(3) Passive bioremediation of fuel hydrocarbons when combined with source removal has been demonstrated to be effective, with cleanup times within substantially the same timeframes as for more aggressive remediation techniques, such as pump-and-treat.

(4) Active pump-and-treat remediation systems are very expensive and may be ineffective at reaching numerical standard cleanup levels.

(5) Reaching numerical standard cleanup levels may not be a valid cleanup goal for in-situ ground water, based upon the relatively low risk to public health and the environment.

In addition, I am including copies of the draft regulatory/policy guidance from the California State Water Resources Control Board and Regional Water Resources Control Board, related to the use of risk-based corrective action principles for the priorization and closure of leaking fuel tank sites.

Also, attached please find an additional discussion related to point-of-use treatment and risk issues (including risk-based corrective action), per the request of the Commissioners during the hearing on November 14, 1996.

If you have any questions, please contact me at (505) 241-2015.

Attachments:

Lawrence Livermore study and related information (transmitted via first class mail)
Observations and information related to point-of-use treatment and risk-based corrective action (transmitted via fax)

DISCUSSION OF RISK ISSUES AND POINT-OF-USE TREATMENT AS A REMEDIAL ALTERNATIVE

Submitted by
PUBLIC SERVICE COMPANY OF NEW MEXICO
by
Toni K. Ristau
Director, Environmental Services Department

Submitted for the Record
before the
New Mexico Oil Conservation Commission

The purpose of this statement is to provide additional information requested by the Commissioners during the hearing on November 14, 1996 related to "point of use treatment" and standard-setting processes or corrective action based upon risk to public health and the environment. The two issues are related, so I will discuss them together.

As was mentioned during the hearing on November 14, 1996, groundwater contamination occurring as a result of oil and gas industry activities often is, based upon risk factors, a lesser threat to public health and the environment than is groundwater contamination occurring as a result of other types of activities. This is not to say that the impacts are not real, and do not need addressing in the interests of protection of public health and the environment.

The reality is that the magnitude of the problem is oftentimes much less, because the activities are relatively small in scale, and they occur in relatively remote areas. These are areas where there is not a large affected population, or where groundwater is at a great depth, or where groundwater already contains relatively high concentrations of naturally occurring deleterious substances. In such a setting, establishment of extremely stringent cleanup standards and requirements applicable to in-situ groundwater which may not be used as a drinking water source for many years (if ever), is not an effective deployment of our limited environmental protection resources. A much more effective approach in such a setting may be to establish stricter discharge/source control requirements to prevent contamination of groundwater in the first place, and to specify point-of-use treatment standards for areas where extraction of groundwater for human use may occur, rather than to impose the enormous costs of treating in-situ groundwater to drinking water standards upon industry (and ultimately upon us all).

The Lawrence Livermore National Laboratory/University of California conducted a study in 1995 related to hydrocarbon contamination in soils and groundwater from leaking fuel tanks. Although this study was done regarding a different regulatory framework (the regulations for addressing corrective action for leaking underground storage tanks under the Resource Conservation and Recovery Act), the "risk" issues and the types of contaminants are largely the same as are presented by oil and gas activities (e.g., fuel hydrocarbon contamination of soils and groundwater). The LLNL study makes three primary recommendations:

(1) Passive bioremediation should be used as a remediation alternative wherever possible.

(2) State water quality policies should be modified to allow the use of risk-based decision making (and risk-based cleanup goals that are higher than the numerical standards) for leaking fuel tank cleanups.

(3) The state should employ risk-based decisionmaking (specifically, a modified Risk-Based Corrective Action, or RBCA, approach) for cleanups that emphasize passive bioremediation.

The LLNL recommendations are based upon the following findings:

(1) In California, less than one-half of one percent of the state's leaking fuel tank cases have affected drinking water wells.

(2) Most of the aquifers that have been impacted in California are shallow ground water, which are of too poor quality for use as drinking water; the deeper aquifers, which are used for drinking water supplies, are adequately protected by well construction standards.

(3) Passive bioremediation of fuel hydrocarbons when combined with source removal has been demonstrated to be effective, with cleanup times within substantially the same timeframes as for more aggressive remediation techniques, such as pump-and-treat.

(4) Active pump-and-treat remediation systems are very expensive and may be ineffective at reaching stringent numerical standard cleanup levels.

(5) Reaching stringent numerical standard cleanup levels may not be a valid cleanup goal for in-situ ground water, based upon the relatively low risk to public health and the environment, and given that potable water oftentimes must be treated anyway before it is delivered to the customer. If treatment is required to meet drinking water standards because the groundwater is contaminated, it is a more efficient use of resources to treat the water at the wellhead, prior to delivery to drinking water users, than to attempt to treat the entire aquifer to drinking water standards.

Earlier this year, the Groundwater Protection and Remediation Bureau (Superfund Section), New Mexico Environment Department (NMED) was the proponent of a proposal to amend the Water Quality Control Commission (WQCC) Ground-Water Standards. The discussion draft of this proposal included: (1) modifications and additions to numerical ground-water health standards in Section 3103.A of the WQCC regulations; and (2) addition of compounds to the list of "Potential Toxic Pollutants" in Section 1101.TT of the WQCC regulations. I believe our response to that regulatory proposal addresses the same issues that have been raised in the OCC hearings, related to clean up of in-situ groundwater to extremely stringent standards, versus using a risk-based approach to both standard-setting and remediation requirements.

In the discussion draft, the NMED proposed that the numerical standards of Section 3103.A would be modified to conform, for the most part, with the Maximum Contaminant Levels (MCLs), which are health-based standards promulgated under the federal Safe Drinking Water Act (SWDA). The MCLs are applicable "at the tap,"; i.e., the MCLs are applied and measured for drinking water quality delivered to consumers in public water systems, after the water is treated as appropriate by the public water supply system. The discussion draft also suggested the addition of a large number of constituents to the list of "Potential Toxic Pollutants" in Section 1101.TT. These constituents are those for which an MCL or other health-based standard exists, but which are not currently on the WQCC list.

Currently, two types of state regulations pertaining to ground-water exist within the State of New Mexico. These two types are the "ambient standards", or standards for receiving waters; and the requirements imposed upon entities and activities which may discharge contaminants that may affect the quality of the receiving waters. The recently promulgated WQCC regulations require, among other things, abatement of ground-water pollution (or ground-water pollution that is likely to occur in the reasonably foreseeable future, though no water quality standard has yet been exceeded in the receiving waters).

The existing ground-water standards ("ambient standards"), for which changes were proposed by the NMED, were promulgated by the WQCC under the authorities of the Water Quality Act (Chapter 74, Article 6, NMSA 1978, as amended). The WQCC has a number of enumerated duties and powers, including:

> The commission . . . shall adopt water quality standards for surface and ground waters of the state subject to the Water Quality Act. . . . The standards shall include narrative standards and as appropriate, the designated uses of the waters and the water quality criteria necessary to protect

such uses. The standards shall at a minimum protect the public health or welfare, enhance the quality of water and serve the purposes of the Water Quality Act. In making standards, the commission shall give weight it deems appropriate to all facts and circumstances, including the use and value of the water for water supplies, propagation of fish and wildlife, recreational purposes, and agricultural, industrial and other purposes; . . .

The WQCC abatement regulations, which are not ambient standards, but are performance standards that apply to dischargers of pollutants or contaminants by specific entities, are also promulgated by the WQCC, as follows:

[The commission] shall adopt, promulgate, and publish regulations to prevent or abate water pollution in the state or in any specific geographic area, aquifer, or watershed of the state or in any part thereof, or for any class of waters . . .. Regulations shall not specify the method to be used to prevent or abate water pollution but may specify a standard of performance for new sources that reflects the greatest reduction in the concentration of water contaminants that the commission determines to be achievable through application of the best available demonstrated control technology, processes, operating methods or other alternatives, including where practicable, a standard permitting no discharge of pollutants. In making regulations, the commission shall give weight it deems appropriate to all relevant facts and circumstances, including:

(1) character and degree of injury to or interference with health, welfare, environment and property;

(2) the public interest, including the social and economic value of the sources of water contaminants;

(3) technical practicability and economic reasonableness of reducing or eliminating water contaminants from the sources involved and previous experience with equipment and methods available to control the water contaminants involved;

(4) successive uses, including but not limited to, domestic, commercial, industrial, pastoral, agricultural, wildlife and recreational uses;

(5) feasibility of a user or a subsequent user treating the water before a subsequent use; [emphasis added]

(6) property rights and accustomed uses; and

(7) federal water quality requirements.

The NMED's proposal was to modify (usually, to make more stringent) the ambient standards (or standards that must be met in the receiving waters), and not to modify the performance or discharge requirements (which are performance standards that apply to individual discharges whose discharge may affect the receiving waters). The practical effect, however, of imposing more stringent ambient standards upon the receiving waters is to also make the abatement/ discharge requirements much more stringent. A good example of this "ripple effect" occurred in the surface water setting when the Isleta Pueblo adopted extremely stringent in-stream water quality standards for the waters of the Rio Grande at the point where the waters of the river pass through the lands of the Pueblo. This regulatory action had the effect of potentially imposing much more stringent (and costly) treatment requirements upon upstream dischargers.

The Safe Drinking Water Act, which provides for the establishment of MCLs for treated drinking water, is delegable to appropriate governments once adequate conforming regulations have been promulgated. In the state of New Mexico, the state has achieved primacy for enforcement of the MCLs upon public water systems by promulgating appropriate regulations. If new MCLs are promulgated at the federal level, the federal requirements are enforceable by federal authorities unless and until the state promulgates conforming drinking water regulations that adopt standards for drinking water in public water systems that are at least as stringent as the federal requirements. Thus, the MCLs are already in effect in New Mexico, and are already applicable to the medium which is to be regulated under the SDWA--water delivered to consumers through public water systems. The Drinking Water Bureau (NMED) is responsible for enforcing conformance with the MCLs by public water supply systems. Within the SDWA, there is no "flow-down" provision that requires the state of New Mexico to promulgate ambient aquifer water quality standards that are equivalent to the MCLs.

The NMED proponent's position regarding adoption of the MCLs as ambient ground-water standards appeared to be that the SDWA MCLs are an accepted, health-based standard for which exhaustive risk analysis has been conducted, and therefore that these health-based standards should be taken at face value and applied as ambient standards for ground-water quality.

In 1995, the U.S. Environmental Protection Agency (EPA) underwent an extensive reassessment of its drinking water protection program, spurred in part by reauthorization proceedings in Congress for the SDWA [EPA 810-D-95-001; *Drinking Water Program Redirection Proposal*, November 1995]. In the Redirection Proposal, EPA noted that Congress had imposed a requirement upon EPA to establish

standards for an initial list of 83 compounds by 1987, and to establish standards for an additional 25 compounds every 3 years (regardless of the time and resources available to prepare thorough, scientifically-grounded studies on the health effects of these compounds, or to prepare defensible risk analyses). This requirement was reinforced by litigation which resulted in court-mandated standards promulgation schedules.

As a result, many of the current and proposed MCLs are not based upon good science or adequate risk assessment. Many of the current MCLs are overly conservative even when applied to public water supplies, as EPA's risk based analysis procedures require the use of extremely conservative assumptions in the face of inadequate health-effect information. As was pointed out by many of the stakeholders in the process, the costs of compliance with these overly stringent standards are very high, and are often not justified by any measurable benefit to public health and welfare.

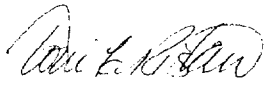
The MCL thus is likely not the appropriate numerical standard for use as an in-situ or ambient groundwater standard for contaminants; a more appropriate standard would be the level which, if exceeded, cannot be adequately treated to meet the drinking water standards prior to delivery as potable water using available control technology. Extremely stringent cleanup standards for in-situ groundwater are thus not usually appropriate where the ground water may never be used as drinking water, and that can, in any case, be treated to drinking water standards prior to delivery as potable water at significantly less cost than treating ground water in the aquifer.

There is a great deal of controversy at the national level on whether extremely stringent standards, such as the MCLs, are an appropriate standard for application to ground water remediation and cleanup activities. The current school of thought is that the MCLs are not, in fact, appropriate aquifer standards, but should instead be employed as they were originally intended, as standards for treated drinking water at the point where the water is actually used as drinking water. To use this criterion to establish aquifer standards would be inappropriate, given the huge difficulties and costs associated with treating in-situ groundwater to meet potable water standards. As the MCLs are already applicable in situations where they were intended to be applied (i.e., to drinking water at the delivery point or the tap), it appears that the use of such standards to establish in-situ numerical cleanup standards is not appropriate.

Rather than specifying an unduly restrictive ambient standard, perhaps the regulatory authorities should specify a risk-assessment requirement for all of the contaminants or pollutants attributable to specific

entities or activities. Such a risk assessment would focus on reasonable (not maximum) future use scenarios to establish a numerical criterion, and would include a cost trade-off on point-of-use treatment vs. treating the aquifer to meet drinking water standards. In other words, if it would be more cost-effective to treat the water at the withdrawal point (e.g., "point-of-use" treatment) to meet a health-based standard that is appropriate for the use for which water is being withdrawn, then overly restrictive ambient ground-water standards or cleanup requirements are redundant and are unnecessary.

Respectfully submitted,



Toni K. Ristau