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### Groundwater Pollution Problems in Mining and Energy Production

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GROUNDWATER POLLUTION PROBLEMS  
IN MINING AND ENERGY PRODUCTION

Henry W. Ipsen  
Kirkland & Ellis

Groundwater:  
Allocation, Development  
and Pollution

Fourth Annual  
Summer Natural Resources Law Short Course

Natural Resources Law Center  
University of Colorado School of Law

June 6-9, 1983



I. GROUNDWATER POLLUTION AND THE MINERALS  
INDUSTRY

A. Generic Types of Groundwater Pollution

1. Direct discharge of wastewaters by disposal through injection wells.
2. Seepage or leachate from storage and disposal of wastes near or on the surface.
3. Contamination from unintentional deposition of wastes.

(Source: EPA, Report to Congress, Waste Disposal Practices and Their Effect on Groundwater, 1977.)

B. Specific Groundwater Pollution Problems Caused by the Minerals Industry

1. Direct injection of wastes:
  - a. Reinjection of fluids brought to the surface in connection with oil and gas production wells.
  - b. Backfilling of tailings in abandoned stopes in connection with hardrock mining and milling operations.
2. Seepage from surface disposal of wastes:

- a. Spent shale from surface retorting operations.
  - b. Process wastewaters from surface retorting of oil shale.
  - c. Waste rock piles and overburden from underground hardrock or mineral mines, and coal mines.
  - d. Sludges from the treatment of mine drainage water.
  - e. Tailings and chemical process wastes from conventional hardrock milling operations.
  - f. Seepage from heap leaching of subgrade ores.
3. Contamination by "non-disposal" activities:
- a. Seepage created by tunneling and blasting in connection with underground mining activities.
  - b. Residual wastes generated by in situ retorting operations associated with oil shale production.

- c. Excursion of solutions associated with in situ chemical processes.
- d. Secondary recovery operations in connection with oil and gas wells, including waterflood recovery, and injection of solvents or microbes to facilitate recovery.

## II. APPLICATION OF COMMON LAW DOCTRINES TO THE PROBLEM OF GROUNDWATER POLLUTION

- A. The Enactment of Comprehensive Water Pollution Control Statutes Has Not Precluded "Private" Remedies. See, e.g., 33 U.S.C. §1365(e) and §25-8-612, CRS 1973.
- B. Negligence Law.
  - 1. The doctrine of negligence usually is applied in two cases:
    - a. Where the polluting activity must be conducted at the particular location because it involves exploitation of a resource located there.
    - b. When the activity normally is not a source of pollution

and the pollution which does occur may or may not have been the result of an unforeseeable event.

(Source: Davis, "Groundwater Pollution: Case Law Theories for Relief", 39 Missouri Law Review, 1974.)

2. Applications of the negligence doctrine: See, cases cited in American Law of Mining, Ch. 4, "Underground Water" and 1978 supplement. See also, Elsey v. Adirondack & St. L. RR, 161 N.Y.S. 391 (N.Y. 1916).
3. Negligence rules are very frequently applied in cases involving pollution of groundwater by oil and gas wells. See, e.g., Norman v. Greenland Drilling Company, 403 P.2d 507 (Okla. 1965); SunRay Mid-Continent Oil Company v. Tisdale, 366 P.2d 614 Okla. 1961); Gulf Oil Corporation v. Alexander, 291 S.W.2d 792, aff'd, 295 S.W.2d 901 (Tex.



1956), McCoy v. Cohen, 140 S.E.2d 427 (W. Va. 1965).

4. Liability without fault -- mining activities as "ultra-hazardous activities" or "abnormally dangerous activities." See, Restatement of Torts, §519 (1939); Bumbarger v. Walker, 164 A.2d 144 (Penn. 1960); Enos v. Schuchart, 88 N.E.2d 406 (Ind. 1963).

C. Nuisance Law.

1. The doctrine of nuisance is usually applied in two situations:
  - a. When the activity need not be conducted in a particular location (and therefore has no necessary relationship to the land) and it normally is a source of pollution or has a propensity to cause pollution.
  - b. Where the polluter refuses to abate the source of pollution once he is notified of its injurious consequences.

(See, Davis, supra.)

2. While some courts select the doctrines of nuisance or negligence based on the relationship of the surface and mineral owners, the vast majority of mining and oil and gas law cases are cited under negligence law rather than nuisance law, regardless of this relationship. (Davis, supra, p. 132-33).
3. Recent cases involving groundwater pollution resulting from oil and gas well operations have combined the doctrine of nuisance with the "ultra-hazardous activity" doctrine to provide a remedy to the plaintiff.
  - a. Mowrer v. Ashland Oil and Refining Company, Inc., 518 F.2d 659 (7th Cir. 1975).
  - b. Branch v. Western Petroleum, Inc., \_\_\_ P.2d \_\_\_, 18 ERC 1934 (Utah 1982).

D. Protection Under Water Rights Doctrines.

1. Riparian States: In most cases the Courts will apply negligence

or nuisance in lieu of the doctrine of reasonable use. Davis, supra, pp. 123-125.

2. Appropriation States: In Western states, the appropriation doctrine historically has been used as a basis for relief (interference with prior appropriative right). See, e.g., Suffolk Gold Mining and Milling Company v. San Miguel Consolidated Mining and Milling Company, 48 Pac. 828 (Colo. 1897).

### III. FEDERAL AND STATE GROUNDWATER PROTECTION PROGRAMS AND THEIR IMPACT ON THE MINERALS INDUSTRY

- A. Until recently, public regulation of groundwater pollution has been sporadic. See, e.g., Corker, "Inadequacy of the Present Law to Protect, Conserve, and Develop Groundwater Use," 25 Rocky Mt. Min. L. Inst. p. 23-1 (1979). See also, U. S. v. Phelps Dodge Corporation, 391 F.Supp. 1181 (D. Ariz. 1975); U. S. v. GAF Corporation, 389 F.Supp. 1379 (S.D. Tex. 1975); Exxon v. Train, 556 F.2d 822 (7th Cir. 1977); U. S.

v. Earth Sciences, Inc., 599 F.2d 368 (10th Cir. 1979). In the past, uncontrolled injection of mining wastes has been viewed as a viable alternative to the discharge of wastes to surface streams. See, e.g., In Re Molybdenum Corporation of America, Interior Board of Land Appeals No. 10867, 1 ER 1381 (1970).

B. The Underground Injection Control Program.

1. Source of authority is Subtitle C of the Safe Drinking Water Act, 42 U.S.C. §§300(f)-300(j)-9 (1976).
2. EPA's UIC Regulatory Program.
  - a. The scope and purview of the UIC program is tied to the protection of drinking water supplies.
  - b. EPA's procedural regulations: 40 CFR Parts 122-24.
  - c. EPA's substantive regulations: 40 CFR Part 146.
  - d. Application of substantive requirements to the minerals industry:

- Classification of activities
- Prohibitions
- Technical requirements regarding well siting and construction
- Monitoring requirements

C. The Resource Conservation Recovery Act of 1976, 42 U.S.C. §6901-6987 (1976).

1. RCRA's regulation of hazardous waste discharges to groundwater and its potential application to the mining industry. See Chemical Manufacturers Assoc., et al. v. EPA, 673 F.2d 507 (D.C. Cir. 1982).
2. Regulation of mining waste and waste associated with the production of oil and gas has been suspended pending the completion of certain studies and reports to Congress.
  - a. The Bevill Amendment, 42 U.S.C. §6982(f) (1980);
  - b. Suspension of EPA permit regulations, 45 Fed. Reg. 776618 (Nov. 19, 1980);

- c. Status of the PEDCO Study  
and EPA's Report to Congress;
  - d. Status of EPA's Oil and Gas  
Well Waste Study.
- D. The Surface Mining Control and Reclamation Act of 1977, 30 U.S.C. §§1201-1328.
- 1. SMCRA includes provisions for protection of groundwater quality from adverse effects of surface and underground coal mining, including standards for pollution, acid mine drainage, and hydrologic disturbance. See, 30 U.S.C. §§1257 and 1265.
  - 2. OSM regulations pertaining to groundwater quality protection in mining and reclamation plans. See, e.g., 30 CFR §§780.21 and 784.14.
- E. The Uranium Mill Tailings Radiation Control Act of 1978, P.L. 95-604, 92 Stat. 3021.
- 1. UMTRCA is concerned with the environmental impacts of uranium mill tailings at active and inactive mill sites.

2. NRC has developed technical requirements pertaining to seepage of toxic materials into groundwater. See Criterion 5 of Appendix A to 10 CFR, Part 40, 45 Fed. Reg. 65533-65536 (Oct. 3, 1980).
- F. The Comprehensive Environmental Response, Compensation, and Liability Act of 1980, 42 U.S.C. 9615.
1. The scope and purview of Superfund.
  2. The National Contingency Plan, and EPA's policy relative to mining sites. See, 47 Fed. Reg. 31180-31243 (July 16, 1982).
- G. Federal Proprietary Regulation of Mining, Milling, and Oil and Gas Operations.
1. Bureau of Land Management:
    - (a) Protective measures imposed on oil shale lessees by BCM.
    - (b) Regulation of production of leasable minerals. 30 C.F.R. §§ 231.10, 231.51.
    - (c) Regulation of mining and milling of locatable minerals. 43 C.F.R. Part 3809.

- (d) Oil and Gas Operating Regulations. 30 C.F.R. §221.32.
- (e) Regulation of geothermal leases. 30 U.S.C. § 1001, et seq.; 30 C.F.R. Part 271.

2. U.S. Forest Service.

- (a) Regulation of mining operations. 36 C.F.R. Part 288.
- (b) Special use permits. 36 C.F.R. Part 251.

H. State Regulatory Programs

1. Colorado

- (a) According to the State Department of Health, mining wastes are a significant contributor to groundwater pollution in Colorado.
- (b) Discharges by injection wells are subject to regulation under the Colorado NPDES program. See, §25-8-103(3), (14) and (19), C.R.S. (1973).
- (c) Subsurface discharges of radioactive and toxic materials from uranium mills are subject to regulation under



the Radiation Control Act, §25-11-101, et seq., CRS (1973), and regulations promulgated thereunder, Criterion 5 of Part III, Schedule E, 6 CCR 1007-1.

- (d) Discharges of oil, brines, or other fluids associated with enhanced recovery operations require a permit from the Oil and Gas Conservation Commission, §§326, 330 and 401, 2 CCR 404-1.
- (e) Mining operations are required to obtain a permit from the MLRB under the Colorado Mined Land Reclamation Act, §34-32-101, et seq., CRS (1973). This Act and MLRB regulations include general and specific requirements to protect groundwater quality. See, e.g., §34-32-116, CRS (1973) and §§ 112(3)(e) (II), 113(5.5)(e), 116(1)(h), 2 CCR 407-1.

(f) The MLRB possesses similar authority with respect to coal mining operations. See, §34-33-101, C.R.S. (1973) and 2 CCR 407-2.

2. Utah

(a) Regulation of underground injection by the Water Pollution Control Committee. See, §26-11-6(14) U.C.A. 1953 (Supp.1981).

(b) Regulation of Mining and Mined Land Reclamation by the Board and Division of Oil, Gas and Mining, §40-8-1, et seq. U.C.A. 1953 (1981 Ed.).

(c) Control of underground injection from oil and gas wells by the Board of Oil, Gas and Mining, §40-6-5, U.C.A. 1953 (1981 Ed.).

3. Montana

(a) Comprehensive regulation of groundwater contamination by the Department of Natural Resources and Conservation, §85-2-501, et seq. M.C.A. (1981).

b. Regulation of Mining and  
Mined Land Reclamation by  
the Board of Land Commissioners  
and Department of State  
Lands.

- Strip and underground mining -  
§82-4-101, et seq., M.C.A.  
(1981).

- Coal and uranium mining -  
§82-4-201, et seq., M.C.A.  
(1981).

- Metal mining - §82-4-301, et  
seq., M.C.A. (1981).

- Opencut mining - §82-4-401,  
et seq., M.C.A. (1981).

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