HAZARDOUS MATERIALS

Abstract: Numerous abandoned and inactive landfills are located on the Forests and Grassland and more illegal dumping is being discovered as time passes. Abandoned and inactive mine sites and landfills, spills and abandonments are also key sources of hazardous materials and waste. Environmental impacts associated with illegal dumping and with chemicals used in abandoned mining activities are being evaluated as well as physical hazards associated with open mine shafts and associated structures.

Major concerns are the combination of stringent regulations associated with disposal of hazardous wastes, our proximity to a metropolitan industrial base, the extensive road network to and in the Forest, and the seclusion and remoteness of many Forest sites, which all lend themselves to an expected increase in illegal dumping of hazardous materials. Accidental spills of petroleum products are a concern as well.

The measurable differences in alternatives would be in the extent of future increases of hazardous materials on National Forest System lands. In alternatives with more motorized recreation use and timber harvest, the potential exists for increases in small spills of petroleum products and abandonments.

LEGAL AND ADMINISTRATIVE FRAMEWORK

The primary hazardous materials policies enacted by *FSM 2160* on the Arapaho and Roosevelt National Forests and Pawnee National Grassland are to protect the safety and health of the public and Forest Service employees from hazardous materials; to minimize agency and personal liabilities related to hazardous materials; and to prevent and/or repair damage caused by hazardous materials on the natural resources and environment on or adjacent to National Forest System lands.

The *Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA)*, as amended by the *Superfund Amendments and Reauthorization Act (SARA)* (42 U.S.C. 9601 et seq.), establishes procedures and standards for responding to releases of hazardous substances, removal and remedial actions, cost recovery and natural resource damage.

AFFECTED ENVIRONMENT

Hazardous materials include a wide range of materials. They include listed and known hazardous substances, hazardous waste, hazardous chemical substances, toxic substances, pollutants, and contaminants. The materials can be in gaseous, liquid or solid form and can have characteristics that are corrosive, toxic, reactive, and ignitible. Abandoned and inactive mine sites, landfills, spills and abandonments can all discharge hazardous materials.

The combination of stringent regulations associated with disposal of hazardous wastes, our proximity to a metropolitan industrial base, the extensive road network to and in the Forest and the seclusion and remoteness of many forest sites all lend themselves to an expected increase in illegal dumping of hazardous materials. Accidental spills of petroleum products and abandonment of recreational equipment are also potential contaminants to the environment.

Numerous abandoned and inactive landfills are located on the ARNF-PNG, with more being discovered as time passes. Many of these landfills are very small, less than 1,000 cubic yards. The landfills are evaluated for potentially hazardous substances, such as pesticides, old batteries, and paints and solvents which in high concentrations may result in groundwater contamination.

Solvents and chemicals associated with abandoned and inactive mine sites have already impacted surrounding soil and water resources. Environmental degradation takes place in many forms such as acid mine discharge, soil and water contamination from leachate and erosion of mine and milling waste and tailings dumps. Physical hazards including open mine shafts, abandoned power lines, and dangerous building structures also exist at many discontinued mine sites. Mineral development currently in operation is closely monitored by the Forest Service and other agencies for compliance with federal, state and local environmental regulations.

CURRENT USE AND MANAGEMENT

The management of hazardous materials is coordinated at multiple levels within the organization such as soils/watershed, minerals and geology, engineering, lands, recreation, and health and safety. The ARNF-PNG's main focus is on maintaining a safe, effective, and coordinated hazardous materials program at all levels of the organization. Efforts are moving forward to clean up identified sites, to identify responsible parties and to enlist their cooperation. The ARNF-PNG is aggressively seeking funding opportunities to assist cleanup efforts.

The Colorado Geological Survey has prepared an inventory of abandoned and inactive mine sites on the ARNF-PNG. These mine sites were assigned *environmental degradation ratings* based on water and soil chemistry and *mine hazard ratings* based on physical hazards and public safety. The sites were then prioritized and assigned ratings for cleanup and reclamation according to their potential for human exposure and/or environmental contamination. The inventory reports 25 sites at which environmental degradation ratings range from 1 to 3 and 151 sites with mine safety hazards ratings ranging from 1 to 2.

The Forest is currently working with the Colorado Division of Minerals and Geology to prioritize abandoned mine lands for evaluation and closure and/or reclamation; to develop and assess alternatives for closure and reclamation of abandoned mines on FS lands; and to select and implement closure and reclamation of abandoned mines on FS lands in accordance with laws, regulations and policies guiding FS management and natural and cultural resources.

DEMAND TRENDS

The combination of Front Range population moving increases on private lands adjacent to the Forest, increasingly stringent and costly regulations for disposal of hazardous wastes, the ARNF's proximity to the Denver metropolitan industrial base and the extensive road network giving accessibility to remote sites is expected to increase the potential for illegal dumping, hazardous material spills and abandonments. Mineral development that occurs will be closely monitored by the Forest Service and other federal, state and local agencies to assure compliance with rules, regulations, and environmental requirements.

ENVIRONMENTAL CONSEQUENCES

The measurable difference among alternatives is in the extent of potential increases in hazardous material incidents on Forest System lands. In Alternatives C and I, more of the Forest is available for timber harvest and/or motorized recreation use; this increases the potential for small spills of petroleum products and abandonments. However, each project that involves the use of hazardous materials is required to have a plan to minimize the possibility of spills and to prescribe actions to be taken if a spill occurs. Spills of hazardous materials are more likely to result from highway accidents than from approved and monitored projects on Forest System lands.