

DISTRIBUTION AND CHARACTERISTICS OF OUTCROP FIRES IN HORIZONTAL STRATA IN EASTERN AND WESTERN COAL PROVINCES. Bernard R. Maynard, Office of Surface Mining Reclamation and Enforcement (OSM), Eastern Field Operations, Technical Assistance Division, Pittsburgh, PA 15220.

Field evaluations of 93 underground mine fires in the Eastern and Western Coal Provinces on the National Abandoned Mine Land Inventory (NAMLI) show that 74 are bituminous coal fires. Forty (54%) of the 74 bituminous fires are near-surface burning seams or outcrops (as opposed to mine fires burning at depth). Eastern Coal Province outcrop fires number 23 (58%), while the Western Province contains 17 (42%) outcrop fires. Similar fire characteristics are found in both coal provinces, including: 1) propagation of fires relative to valley shape, orientation and the direction of prevailing winds; 2) venting fissures extend to the surface, forming parallel to the contour and developing in response to stress release along existing fracture systems; 3) venting intensity appears to increase along the highest fissures as ventilation develops relative to strata conditions and the existing fracture system; 4) non-contiguous zones of combustion occur along the length of the fire; and, 5) vegetational delineation above fire zones appear related to the tolerance of selected species within climatic regimes. Diagnostic procedures have not been developed to identify non-contiguous combustion segments and the depth into the seam that combustion occurs. Applied research during abatement projects could characterize and quantify outcrop fires. Innovative, cost-effective techniques to improve existing control methods are needed. One recently adapted technology utilizes foam concentrates such as those used in fighting forest fires.

