

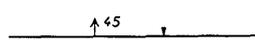
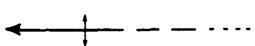
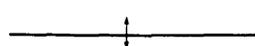
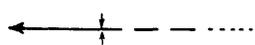
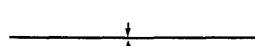
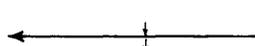
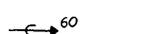
DEPARTMENT OF THE INTERIOR
UNITED STATES GEOLOGICAL SURVEY

**GEOLOGIC MAP AND COAL RESOURCES OF THE
WHITE BUTTE NW QUADRANGLE, STARK AND
HETTINGER COUNTIES, NORTH DAKOTA**

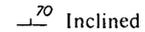
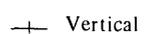
By K. S. Soward

COAL INVESTIGATIONS MAP
Published by the U.S. Geological Survey, 1975
Reston, Va. 22092

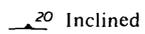
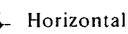
GEOLOGIC MAP SYMBOLS
COMMONLY USED ON MAPS OF THE UNITED STATES GEOLOGICAL SURVEY
(Special symbols are shown in explanation)

-  Contact – Dashed where approximately located; short dashed where inferred; dotted where concealed
-  Contact – Showing dip; well exposed at triangle
-  Fault – Dashed where approximately located; short dashed where inferred; dotted where concealed
-  Fault, showing dip – Ball and bar on downthrown side
-  Normal fault – Hachured on downthrown side
-  Fault – Showing relative horizontal movement
-  Thrust fault – Sawteeth on upper plate
-  Anticline – Showing direction of plunge; dashed where approximately located; dotted where concealed
-  Asymmetric anticline – Short arrow indicates steeper limb
-  Overturned anticline – Showing direction of dip of limbs
-  Syncline – Showing direction of plunge; dashed where approximately located; dotted where concealed
-  Asymmetric syncline – Short arrow indicates steeper limb
-  Overturned syncline – Showing direction of dip of limbs
-  Monocline – Showing direction of plunge of axis
-  Minor anticline – Showing plunge of axis
-  Minor syncline – Showing plunge of axis

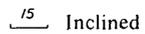
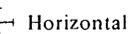
Strike and dip of beds – Ball indicates top of beds known from sedimentary structures

-  70° Inclined  Horizontal
-  Vertical  40° Overturned

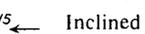
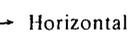
Strike and dip of foliation

-  20° Inclined  Vertical  Horizontal

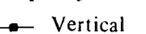
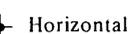
Strike and dip of cleavage

-  15° Inclined  Vertical  Horizontal

Bearing and plunge of lination

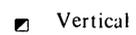
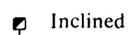
-  15° Inclined  Vertical  Horizontal

Strike and dip of joints

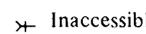
-  40° Inclined  Vertical  Horizontal

Note: planar symbols (strike and dip of beds, foliation or schistosity, and cleavage) may be combined with linear symbols to record data observed at same locality by superimposed symbols at point of observation. Coexisting planar symbols are shown intersecting at point of observation.

Shafts

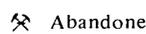
-  Vertical  Inclined

Adit, tunnel, or slope

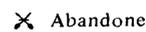
-  Accessible  Inaccessible

x Prospect

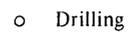
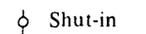
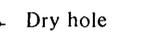
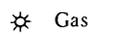
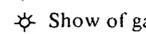
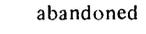
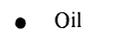
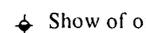
Quarry

-  Active  Abandoned

Gravel pit

-  Active  Abandoned

Oil well

-  Drilling  Shut-in  Dry hole
-  Gas  Show of gas  abandoned
-  Oil  Show of oil