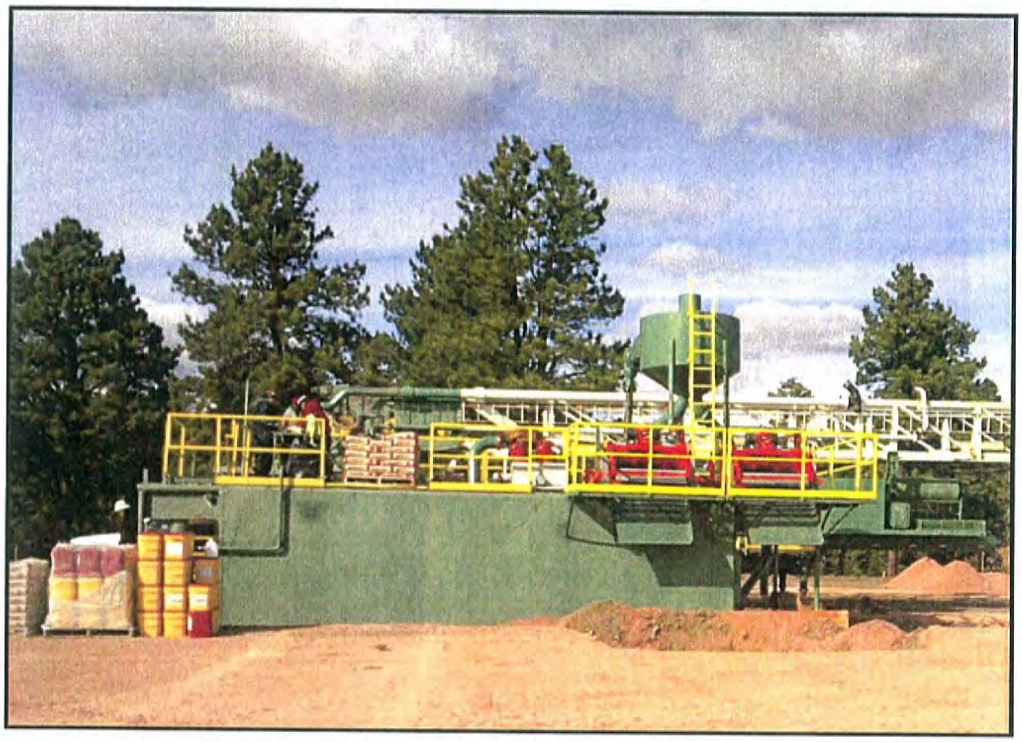
APPENDIX D

Photographs of drilling equipment.

Drill rig with derrick down, portable mud pit, and dog house before assembly.

Dog house with 80-kW generator.



Portable 300-bbl mud pit with cyclone and shale shakers.

300-bbl mud pit and cyclone.

Challenger 360-200 rig assembled with mud pit, frac tanks, and drill pipe trailer.

Cyclone, two shale shakers, desanders, and jet mixer on mud pit deck.

Pipe trailer with 11-inch drill collars laying on 7-inch drill pipe. Air line on ground.

Double stack drum winch on right, engine housing behind winch. Cathead for tongs.

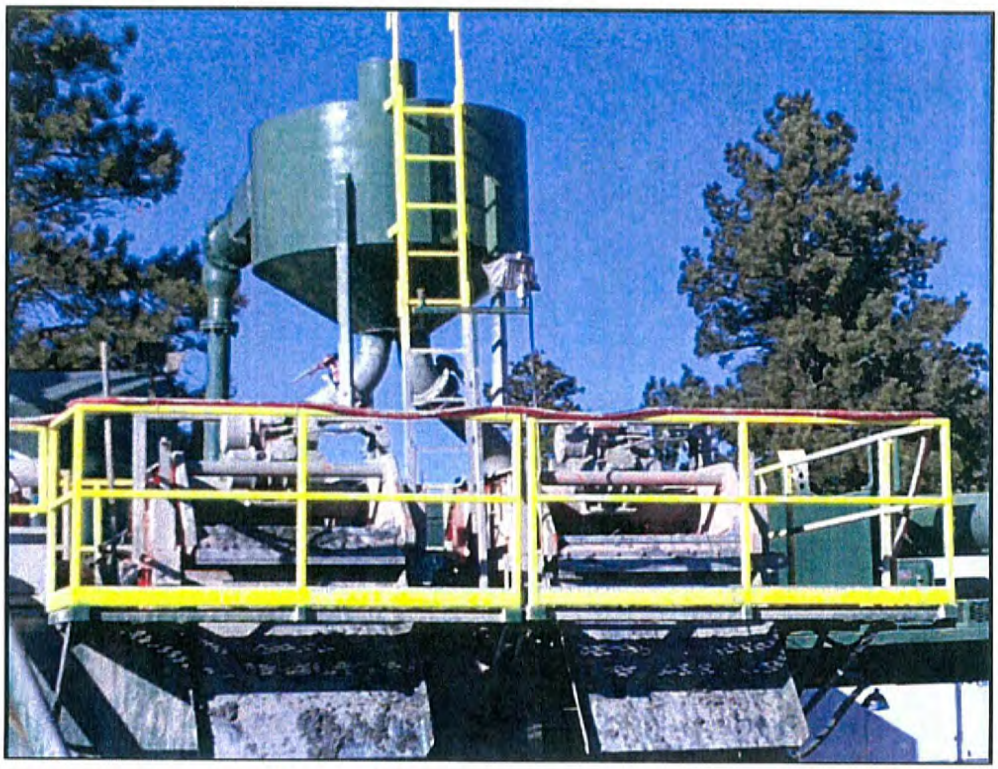
Brewster 100-ton, 4-sheave traveling block on working line.

McKissick 100-ton 4-sheave traveling block and hook above high-pressure swivel.

Crown block and 4-line sheaves at top of derrick; geolograph line on left side of derrick.

Hexagonal Kelly and IDECO 23-inch rotary table.

Driller with hand on "Automatic Driller".



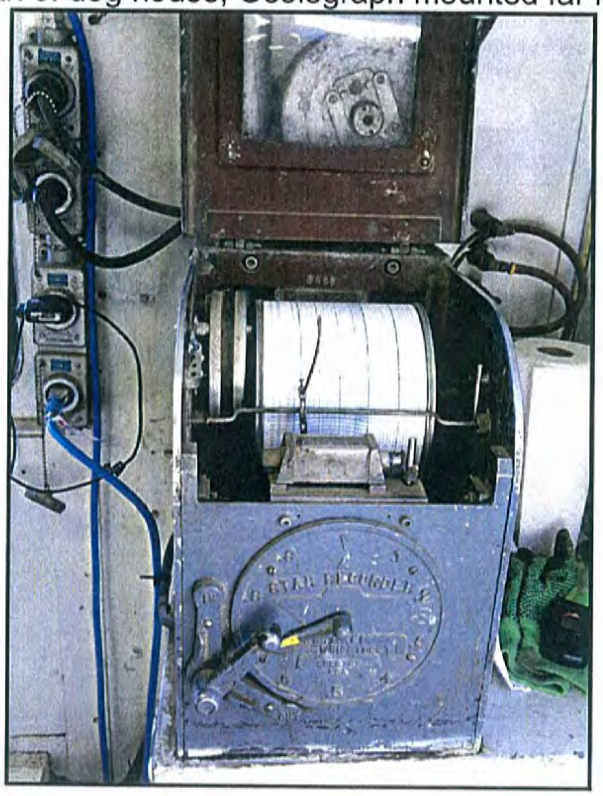
Two shale shakers in operation, shaking cuttings over side and returning drill fluid to pit.

Two desanders in operation to remove solids from drilling fluid.

Dual stacked winches between mast in background and engine housing. On-deck fuel tank in right foreground.

225-kW Cat generator for shale shakers and mixers.

View along inside length of dog house; Geolograph mounted far left.



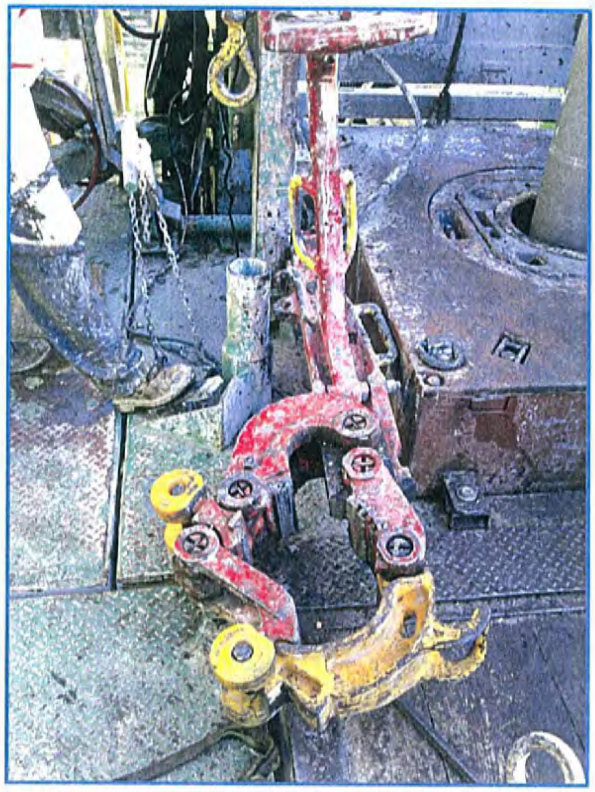
Single-pen geolograph to record rate of penetration (ROP).

80-kW generator for dog house and derrick lights.

1170-cfm Ingersoll-Rand compressor for flooded reverse circulation drilling.

90-kW generator for field office.

Field office with skirt and Morrison-Maierle, Inc. geologist's pick up truck.



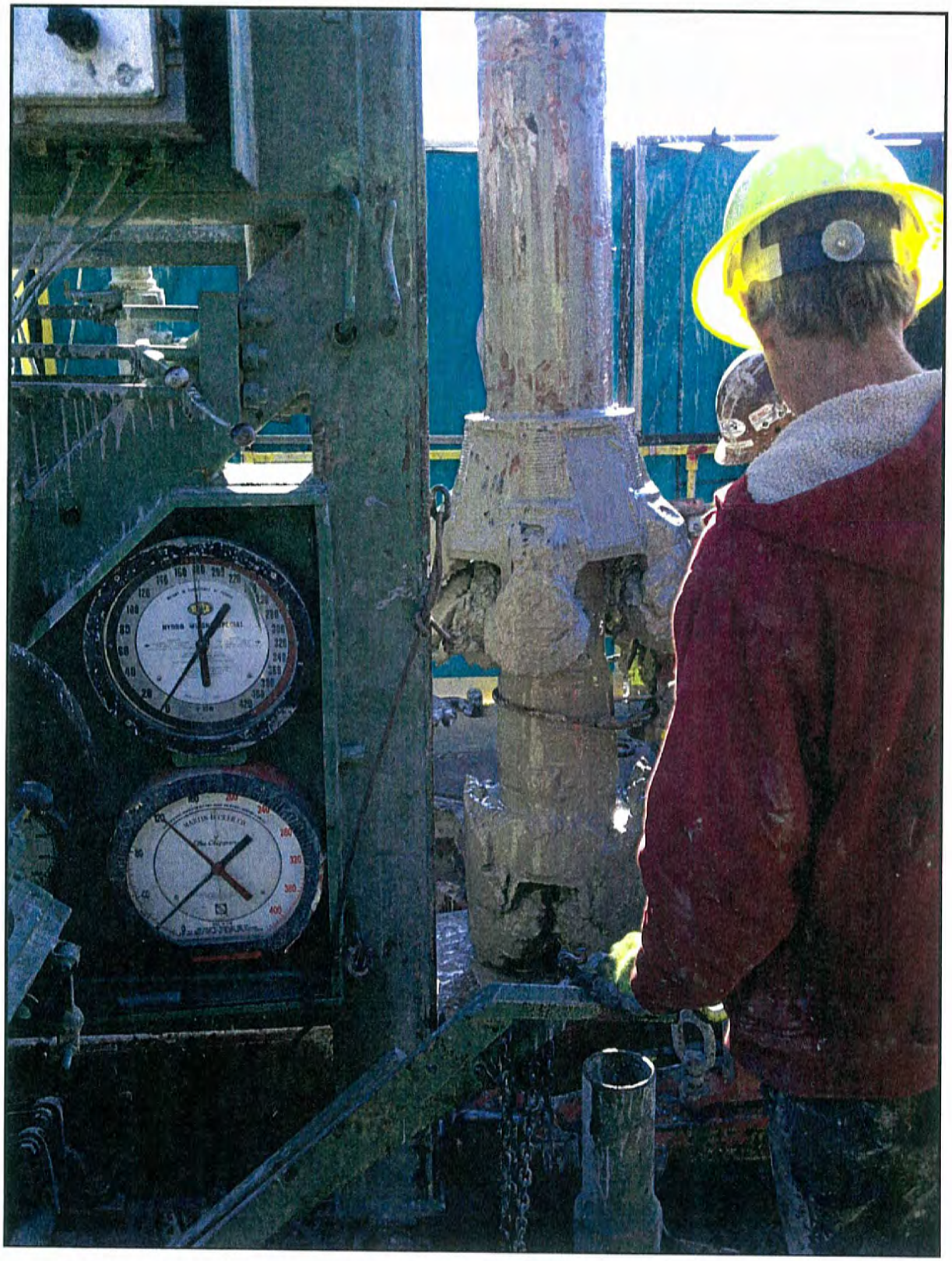
Tongs for tightening and breaking tool joints on drill pipe when adding or removing pipe.

Driller and helper setting tongs to break loose sub on drill bit assembly.

Helper holding tongs clamp while winch lines pull tongs to break threads loose on joint.

14.75-inch lead bit and 22-inch hole opener (reamer) removed from hole.

Pilot bit and reamer removed from hole, cones balled up with clay and will not turn.



Line weight scales.