WATER WELL RECORD Form WWC-5 KSA 82a-1212

1 LOCATION OF WATER WELL: County: McPherson | Fraction: SE ¼ SE ¼ NW ¼ | Section Number: 32 | Township Number: T 18 S | Range Number: R 3 (E) W

Distance and direction from nearest town or city street address of well if located within city? 4½ miles North of McPherson, KS (HLSBOG)

2 WATER WELL OWNER: U.S. Dept of Agriculture, Farm Service Agency
RR#, St. Address, Box # : P.O. Box 2415, South Agriculture Bldg
City, State, ZIP Code : Washington, D.C. 20013
Board of Agriculture, Division of Water Resources Application Number:

3 LOCATE WELL'S LOCATION WITH AN "X" IN SECTION BOX: N / NW / NE / W / E / SW / SE / S; 1 Mile

4 DEPTH OF COMPLETED WELL 205 ft. ELEVATION:
Depth(s) Groundwater Encountered 1. ft. 2. ft. 3. ft.
WELL'S STATIC WATER LEVEL 77.27 ft. below land surface measured on mo/day/yr 4/25/97
Pump test data: Well water was ft. after hours pumping gpm
Est. Yield 15 gpm: Well water was Developed ~~bailed~~ 2½ hours pumping ± 15 gpm
Bore Hole Diameter 9⅞ in. to ft., and in. to ft.
WELL WATER TO BE USED AS: 1 Domestic 2 Irrigation 3 Feedlot 4 Industrial 5 Public water supply 6 Oil field water supply 7 Lawn and garden only 8 Air conditioning 9 Dewatering (10) Monitoring well 11 Injection well 12 Other (Specify below)
Was a chemical/bacteriological sample submitted to Department? Yes No X; If yes, mo/day/yr sample was submitted Water Well Disinfected? Yes (No)

5 TYPE OF BLANK CASING USED: (2) PVC; 1 Steel 3 RMP (SR) 4 ABS 5 Wrought iron 6 Asbestos-Cement 7 Fiberglass 8 Concrete tile 9 Other (specify below)
CASING JOINTS: Glued Clamped Welded Threaded X
Blank casing diameter 4 in. to 109-114 ft., Dia 4" in. to 0-99' ft., Dia in. to ft.
Casing height above land surface 6 in., weight lbs./ft. Wall thickness or gauge No. Sch 40 PVC
TYPE OF SCREEN OR PERFORATION MATERIAL: (7) PVC; 1 Steel 3 Stainless steel 2 Brass 4 Galvanized steel 5 Fiberglass 6 Concrete tile (8) RMP (SR) 9 ABS 10 Asbestos-cement 11 Other (specify) 12 None used (open hole)
SCREEN OR PERFORATION OPENINGS ARE: (1) Continuous slot .010 2 Louvered shutter 3 Mill slot 4 Key punched 5 Gauzed wrapped 6 Wire wrapped 7 Torch cut 8 Saw cut 9 Drilled holes 10 Other (specify) 11 None (open hole)
SCREEN-PERFORATED INTERVALS: From 99 ft. to 109 ft., From ft. to ft.
From 7 ft. to ft., From ft. to ft.
GRAVEL PACK INTERVALS: From 115.5 ft. to 95.5 ft., From ft. to ft.
From ft. to ft., From ft. to ft.

6 GROUT MATERIAL: (1) Neat cement 2 Cement grout (3) Bentonite 4 Other Bentonite seals 91-95, 114.5-118
Grout Intervals: From 91 ft. to surface ft., From ft. to ft., From ft. to ft.
What is the nearest source of possible contamination: 1 Septic tank 2 Sewer lines 3 Watertight sewer lines 4 Lateral lines 5 Cess pool 6 Seepage pit 7 Pit privy 8 Sewage lagoon 9 Feedyard 10 Livestock pens 11 Fuel storage (12) Fertilizer storage 13 Insecticide storage 14 Abandoned water well 15 Oil well/Gas well 16 Other (specify below)
Direction from well? How many feet?

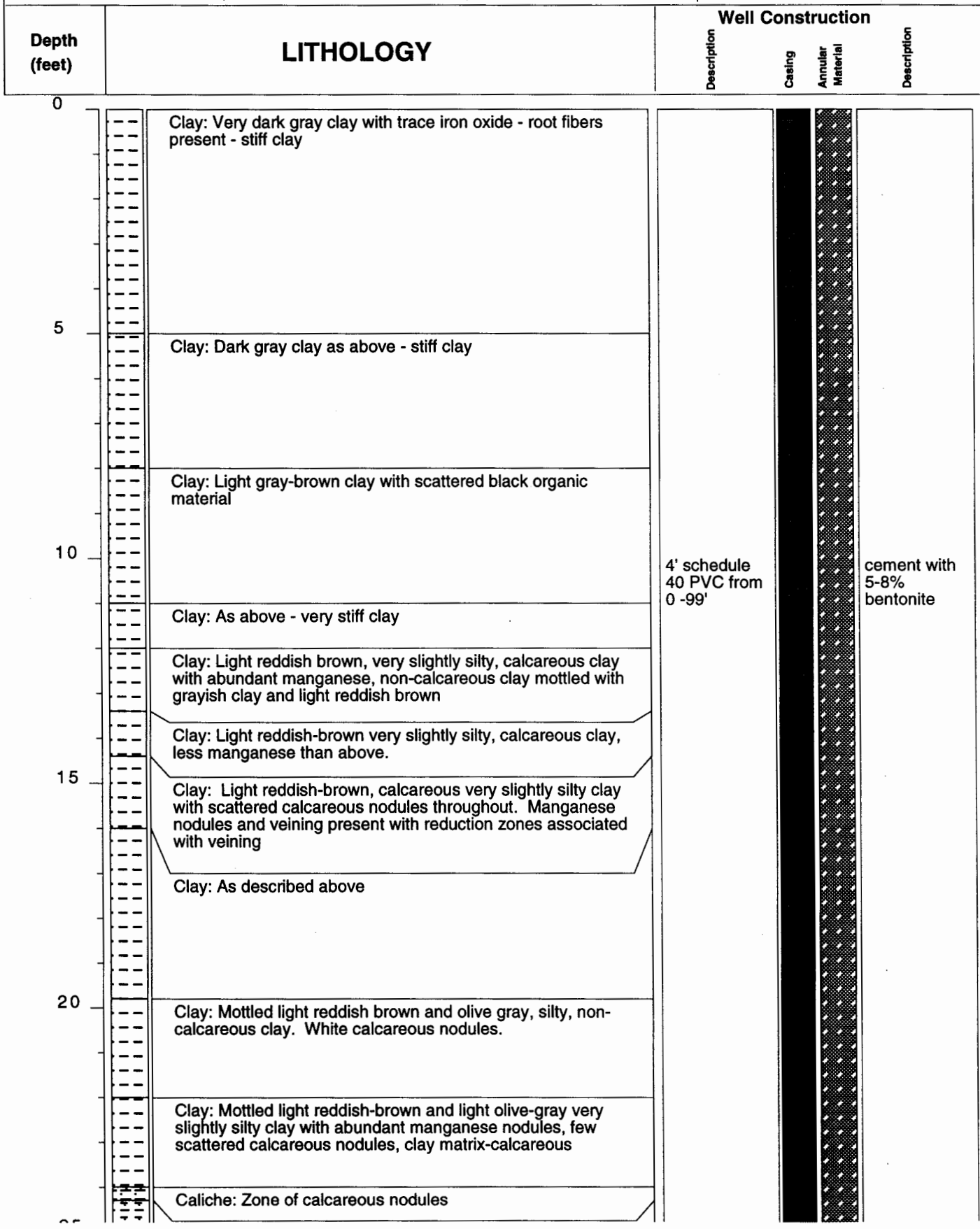
FROM	TO	LITHOLOGIC LOG	FROM	TO	PLUGGING INTERVALS
		See enclosed Lithology			

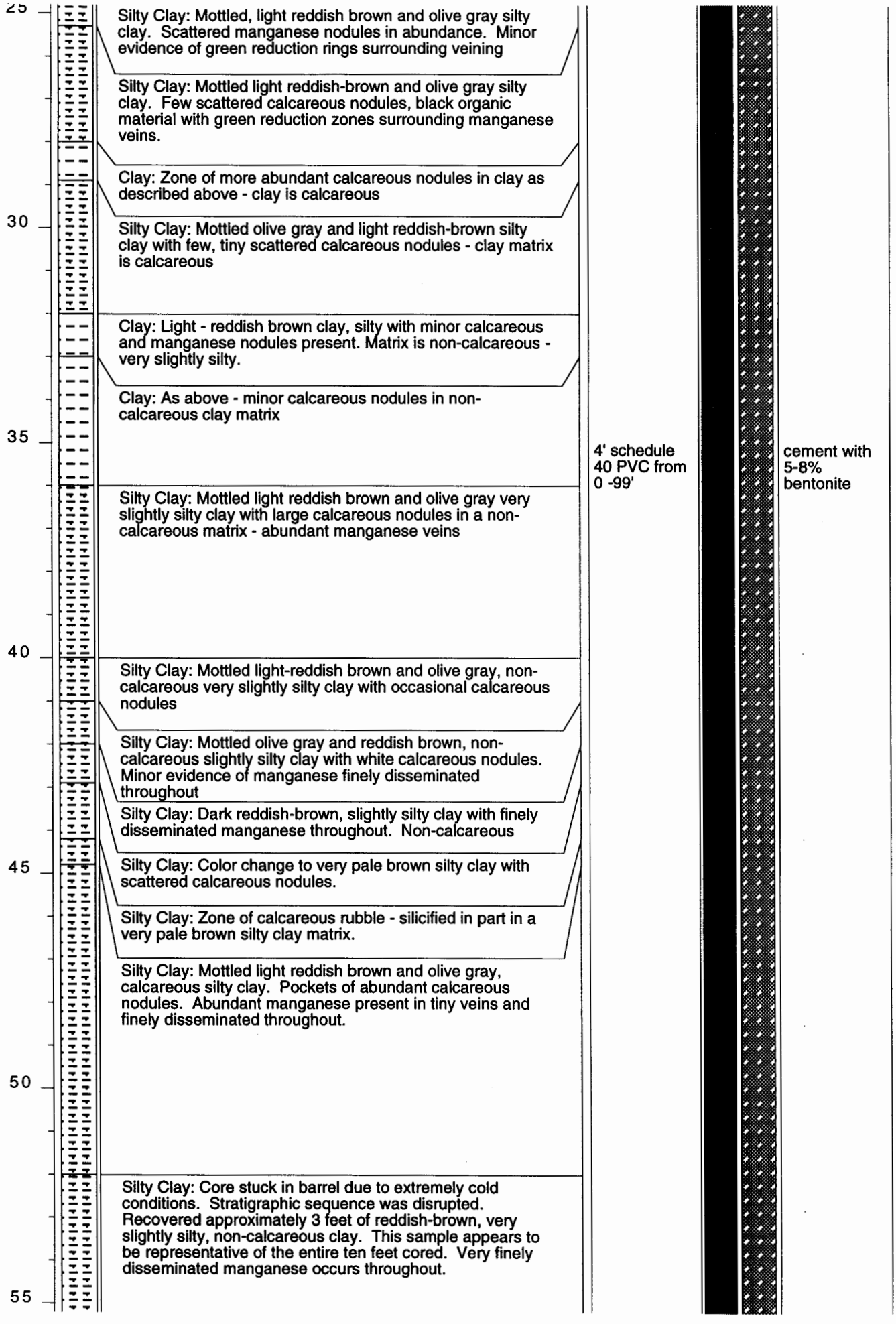
7 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was (1) constructed, (2) reconstructed, or (3) plugged under my jurisdiction and was completed on (mo/day/year) 4-30-97 and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. 581 This Water Well Record was completed on (mo/day/yr) 5-28-97
under the business name of Layne Western Co by (signature) Steven R Mitchell

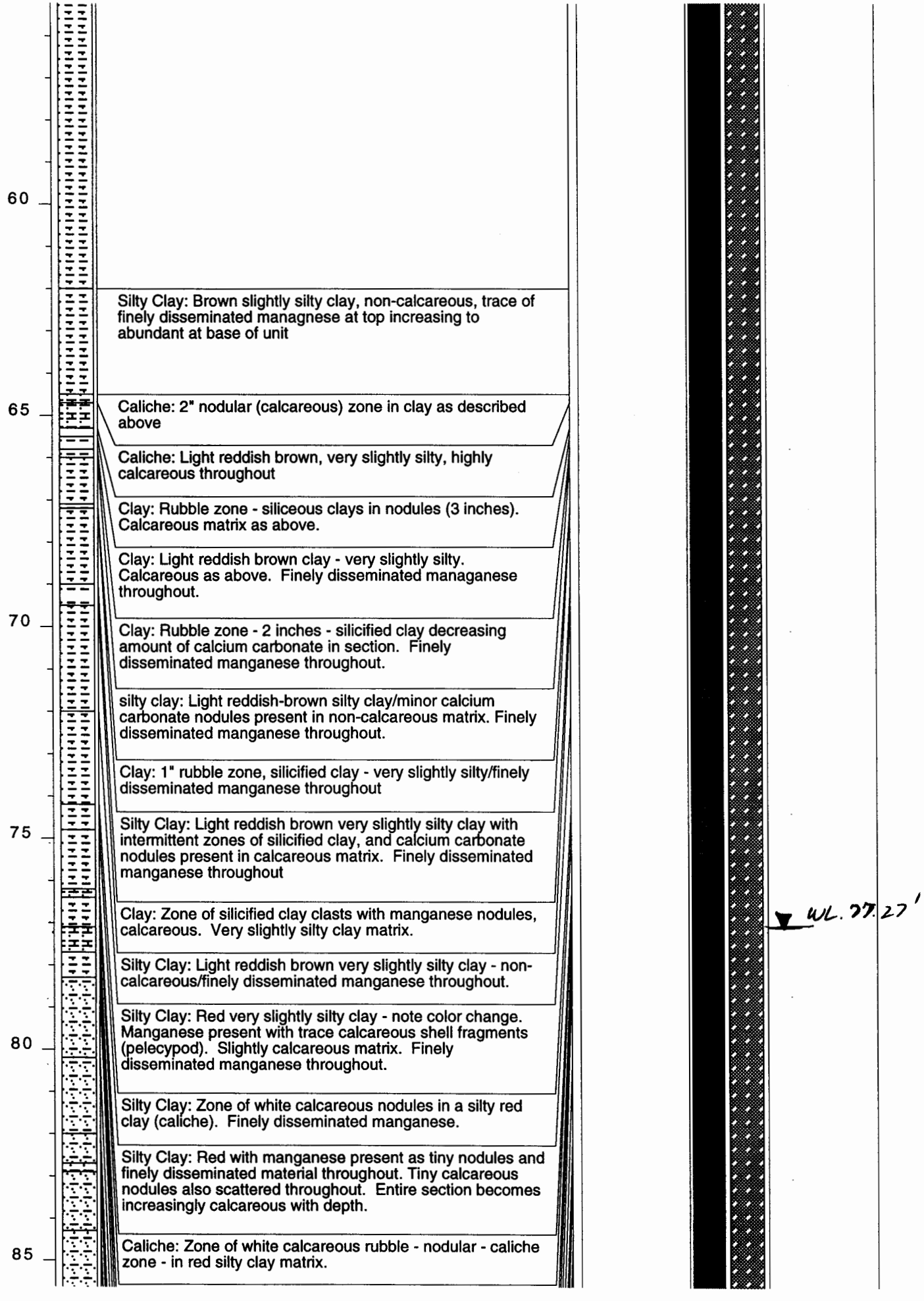
INSTRUCTIONS: Use typewriter or ball point pen. PLEASE PRESS FIRMLY and PRINT clearly. Please fill in blanks, underline or circle the correct answers. Send top three copies to Kansas Department of Health and Environment, Bureau of Water, Topeka, Kansas 66620-0001. Telephone: 913-296-5545. Send one to WATER WELL OWNER and retain one for your records.

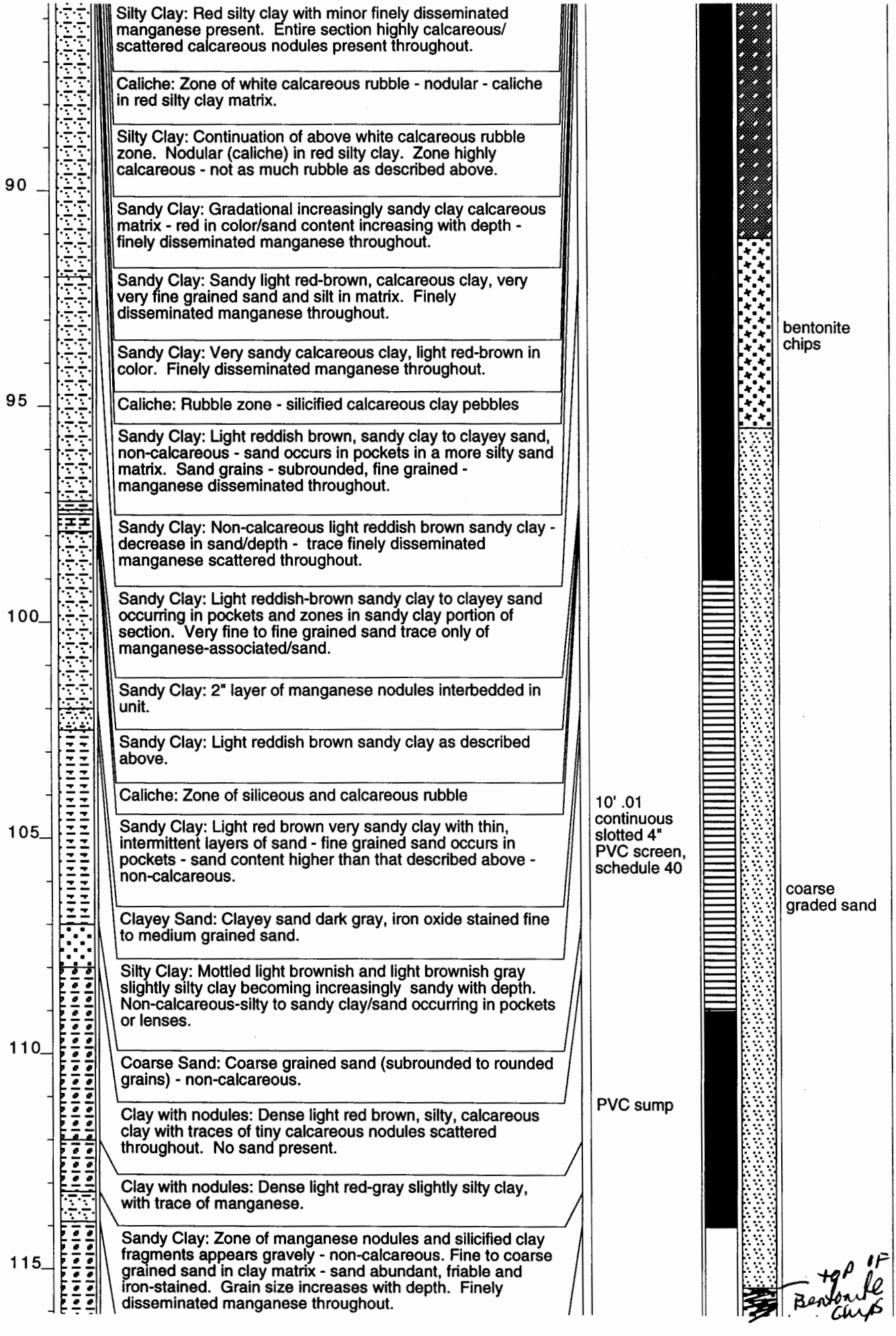
OFFICE USE ONLY T R E/W SEC. ¼ ¼ ¼

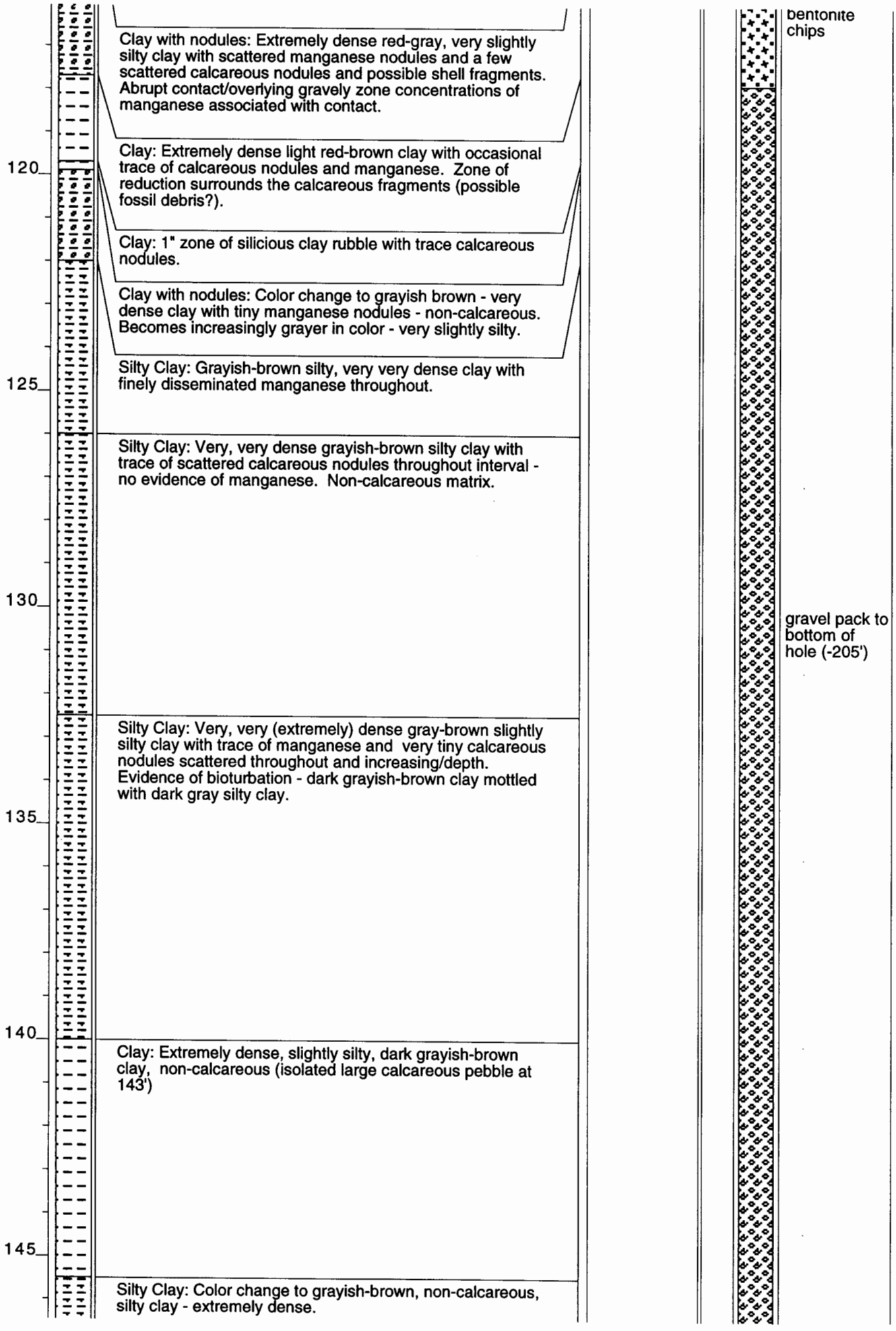
Argonne National Laboratory		Soil Boring ID: SB06 Log Type: Soil Boring	
Project: HILTON	Ground Elevation: 0	Total Depth: 205 FT	Driller: Name Company: Company
Date: 4/13/97	Plot Date: 5/5/97	Geologist: name	Rig: Rig

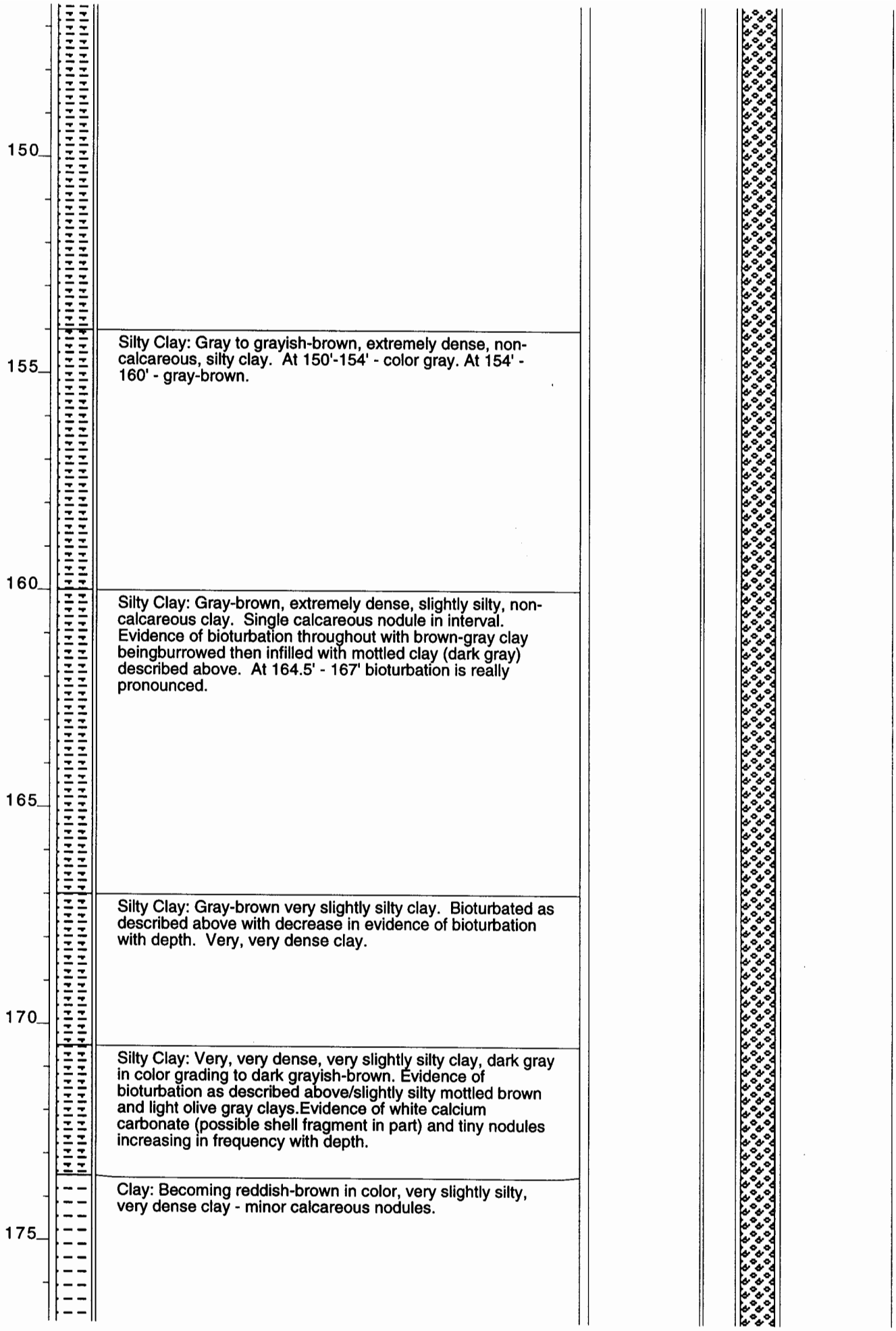


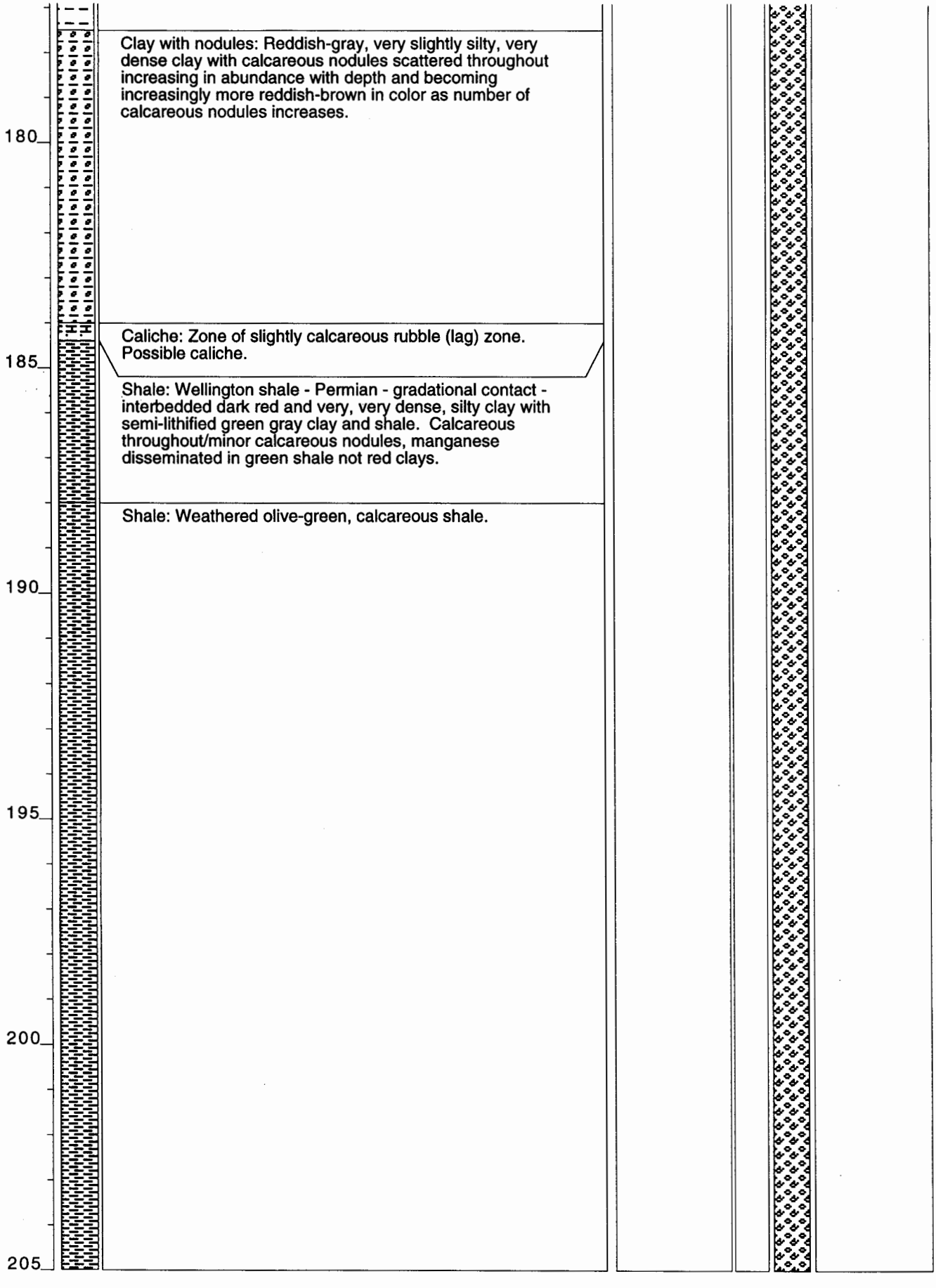

25
30
35
40
45
50
55
Silty Clay: Mottled, light reddish brown and olive gray silty clay. Scattered manganese nodules in abundance. Minor evidence of green reduction rings surrounding veining
Silty Clay: Mottled light reddish-brown and olive gray silty clay. Few scattered calcareous nodules, black organic material with green reduction zones surrounding manganese veins.
Clay: Zone of more abundant calcareous nodules in clay as described above - clay is calcareous
Silty Clay: Mottled olive gray and light reddish-brown silty clay with few, tiny scattered calcareous nodules - clay matrix is calcareous
Clay: Light - reddish brown clay, silty with minor calcareous and manganese nodules present. Matrix is non-calcareous - very slightly silty.
Clay: As above - minor calcareous nodules in non-calcareous clay matrix
Silty Clay: Mottled light reddish brown and olive gray very slightly silty clay with large calcareous nodules in a non-calcareous matrix - abundant manganese veins
Silty Clay: Mottled light-reddish brown and olive gray, non-calcareous very slightly silty clay with occasional calcareous nodules
Silty Clay: Mottled olive gray and reddish brown, non-calcareous slightly silty clay with white calcareous nodules. Minor evidence of manganese finely disseminated throughout
Silty Clay: Dark reddish-brown, slightly silty clay with finely disseminated manganese throughout. Non-calcareous
Silty Clay: Color change to very pale brown silty clay with scattered calcareous nodules.
Silty Clay: Zone of calcareous rubble - silicified in part in a very pale brown silty clay matrix.
Silty Clay: Mottled light reddish brown and olive gray, calcareous silty clay. Pockets of abundant calcareous nodules. Abundant manganese present in tiny veins and finely disseminated throughout.
Silty Clay: Core stuck in barrel due to extremely cold conditions. Stratigraphic sequence was disrupted. Recovered approximately 3 feet of reddish-brown, very slightly silty, non-calcareous clay. This sample appears to be representative of the entire ten feet cored. Very finely disseminated manganese occurs throughout.
4' schedule 40 PVC from 0 -99'
cement with 5-8% bentonite


60
65
70
75
80
85
Silty Clay: Brown slightly silty clay, non-calcareous, trace of finely disseminated managnese at top increasing to abundant at base of unit
Caliche: 2" nodular (calcareous) zone in clay as described above
Caliche: Light reddish brown, very slightly silty, highly calcareous throughout
Clay: Rubble zone - siliceous clays in nodules (3 inches). Calcareous matrix as above.
Clay: Light reddish brown clay - very slightly silty. Calcareous as above. Finely disseminated managanese throughout.
Clay: Rubble zone - 2 inches - silicified clay decreasing amount of calcium carbonate in section. Finely disseminated manganese throughout.
silty clay: Light reddish-brown silty clay/minor calcium carbonate nodules present in non-calcareous matrix. Finely disseminated manganese throughout.
Clay: 1" rubble zone, silicified clay - very slightly silty/finely disseminated manganese throughout
Silty Clay: Light reddish brown very slightly silty clay with intermittent zones of silicified clay, and calcium carbonate nodules present in calcareous matrix. Finely disseminated manganese throughout
Clay: Zone of silicified clay clasts with manganese nodules, calcareous. Very slightly silty clay matrix.
Silty Clay: Light reddish brown very slightly silty clay - non-calcareous/finely disseminated manganese throughout.
Silty Clay: Red very slightly silty clay - note color change. Manganese present with trace calcareous shell fragments (pelecypod). Slightly calcareous matrix. Finely disseminated manganese throughout.
Silty Clay: Zone of white calcareous nodules in a silty red clay (caliche). Finely disseminated manganese.
Silty Clay: Red with manganese present as tiny nodules and finely disseminated material throughout. Tiny calcareous nodules also scattered throughout. Entire section becomes increasingly calcareous with depth.
Caliche: Zone of white calcareous rubble - nodular - caliche zone - in red silty clay matrix.
WL. 77.27'


90
95
100
105
110
115
Silty Clay: Red silty clay with minor finely disseminated manganese present. Entire section highly calcareous/ scattered calcareous nodules present throughout.
Caliche: Zone of white calcareous rubble - nodular - caliche in red silty clay matrix.
Silty Clay: Continuation of above white calcareous rubble zone. Nodular (caliche) in red silty clay. Zone highly calcareous - not as much rubble as described above.
Sandy Clay: Gradational increasingly sandy clay calcareous matrix - red in color/sand content increasing with depth - finely disseminated manganese throughout.
Sandy Clay: Sandy light red-brown, calcareous clay, very very fine grained sand and silt in matrix. Finely disseminated manganese throughout.
Sandy Clay: Very sandy calcareous clay, light red-brown in color. Finely disseminated manganese throughout.
Caliche: Rubble zone - silicified calcareous clay pebbles
Sandy Clay: Light reddish brown, sandy clay to clayey sand, non-calcareous - sand occurs in pockets in a more silty sand matrix. Sand grains - subrounded, fine grained - manganese disseminated throughout.
Sandy Clay: Non-calcareous light reddish brown sandy clay - decrease in sand/depth - trace finely disseminated manganese scattered throughout.
Sandy Clay: Light reddish-brown sandy clay to clayey sand occurring in pockets and zones in sandy clay portion of section. Very fine to fine grained sand trace only of manganese-associated/sand.
Sandy Clay: 2" layer of manganese nodules interbedded in unit.
Sandy Clay: Light reddish brown sandy clay as described above.
Caliche: Zone of siliceous and calcareous rubble
Sandy Clay: Light red brown very sandy clay with thin, intermittent layers of sand - fine grained sand occurs in pockets - sand content higher than that described above - non-calcareous.
Clayey Sand: Clayey sand dark gray, iron oxide stained fine to medium grained sand.
Silty Clay: Mottled light brownish and light brownish gray slightly silty clay becoming increasingly sandy with depth. Non-calcareous-silty to sandy clay/sand occurring in pockets or lenses.
Coarse Sand: Coarse grained sand (subrounded to rounded grains) - non-calcareous.
Clay with nodules: Dense light red brown, silty, calcareous clay with traces of tiny calcareous nodules scattered throughout. No sand present.
Clay with nodules: Dense light red-gray slightly silty clay, with trace of manganese.
Sandy Clay: Zone of manganese nodules and silicified clay fragments appears gravely - non-calcareous. Fine to coarse grained sand in clay matrix - sand abundant, friable and iron-stained. Grain size increases with depth. Finely disseminated manganese throughout.
10' .01 continuous slotted 4" PVC screen, schedule 40
PVC sump
bentonite chips
coarse graded sand
top of Bentonite chips


Clay with nodules: Extremely dense red-gray, very slightly silty clay with scattered manganese nodules and a few scattered calcareous nodules and possible shell fragments. Abrupt contact/overlying gravely zone concentrations of manganese associated with contact.
Clay: Extremely dense light red-brown clay with occasional trace of calcareous nodules and manganese. Zone of reduction surrounds the calcareous fragments (possible fossil debris?).
Clay: 1" zone of silicious clay rubble with trace calcareous nodules.
Clay with nodules: Color change to grayish brown - very dense clay with tiny manganese nodules - non-calcareous. Becomes increasingly grayer in color - very slightly silty.
Silty Clay: Grayish-brown silty, very very dense clay with finely disseminated manganese throughout.
Silty Clay: Very, very dense grayish-brown silty clay with trace of scattered calcareous nodules throughout interval - no evidence of manganese. Non-calcareous matrix.
Silty Clay: Very, very (extremely) dense gray-brown slightly silty clay with trace of manganese and very tiny calcareous nodules scattered throughout and increasing/depth. Evidence of bioturbation - dark grayish-brown clay mottled with dark gray silty clay.
Clay: Extremely dense, slightly silty, dark grayish-brown clay, non-calcareous (isolated large calcareous pebble at 143')
Silty Clay: Color change to grayish-brown, non-calcareous, silty clay - extremely dense.
120
125
130
135
140
145
bentonite chips
gravel pack to bottom of hole (-205')


150
155
160
165
170
175
Silty Clay: Gray to grayish-brown, extremely dense, non-calcareous, silty clay. At 150'-154' - color gray. At 154' - 160' - gray-brown.
Silty Clay: Gray-brown, extremely dense, slightly silty, non-calcareous clay. Single calcareous nodule in interval. Evidence of bioturbation throughout with brown-gray clay beingburrowed then infilled with mottled clay (dark gray) described above. At 164.5' - 167' bioturbation is really pronounced.
Silty Clay: Gray-brown very slightly silty clay. Bioturbated as described above with decrease in evidence of bioturbation with depth. Very, very dense clay.
Silty Clay: Very, very dense, very slightly silty clay, dark gray in color grading to dark grayish-brown. Evidence of bioturbation as described above/slightly silty mottled brown and light olive gray clays.Evidence of white calcium carbonate (possible shell fragment in part) and tiny nodules increasing in frequency with depth.
Clay: Becoming reddish-brown in color, very slightly silty, very dense clay - minor calcareous nodules.


Clay with nodules: Reddish-gray, very slightly silty, very dense clay with calcareous nodules scattered throughout increasing in abundance with depth and becoming increasingly more reddish-brown in color as number of calcareous nodules increases.
180
Caliche: Zone of slightly calcareous rubble (lag) zone. Possible caliche.
185
Shale: Wellington shale - Permian - gradational contact - interbedded dark red and very, very dense, silty clay with semi-lithified green gray clay and shale. Calcareous throughout/minor calcareous nodules, manganese disseminated in green shale not red clays.
Shale: Weathered olive-green, calcareous shale.
190
195
200
205