

*Guide for Using the Hydrogeologic Classification System for Logging Water Well Boreholes by Thomas M. Hanna NGWA Press

RADIAN
CORPORATION

in Tesoro's "Monitoring Wells Plant Coordinates..." catalogue
LOG OF DRILLING OPERATIONS as point #805, Sheet 1 of 124256
p(5)

Boring or Well No. SMW-12B aka MW-12B
Location Tesoro-Kenai Refinery
Log Recorded by G. Shaw
Sampling Interval (Est.) composite - 5 ft
Type Drill Rig and Operator CME-55 HSA Bob Hughes/Anchor Point Drilling

RA 12-30-91
Project Tesoro, AK-RCRA Compliance
Beginning 27 May 1988: 8:00 am and end
27 May 1988: 11:20 am of drilling operation

Depth	Graphic Log	Grab Depth (G)	Lithologic Description	Remarks
-		G	SAND and GRAVEL: brown, poorly sorted, fine to medium grained sand, small to large gravel, some organic matter.	HNU - N/D.
10-		G	SAND and GRAVEL: brown, moderately sorted, less fine sand, less silt, gravel layer at 5'-7'.	HNU - N/D.
-		G	SAND: brown, moderately sorted, minor gravel, no silt.	HNU - N/D.
-		-	-	-
20-		G	SAND: as above.	HNU - N/D.
-		G	SAND: as above.	HNU - N/D.
-		-	-	-
30-		G	SAND: as above; coarse grained.	HNU - N/D.
-		G	SAND: as above.	HNU - N/D.
-		-	-	-
40-		G	SAND: as above.	HNU - N/D.
-		G	SAND: as above; dominantly medium grained.	HNU - N/D.
-		-	-	-
50-		G	SAND: as above, damp.	HNU - N/D.
-		G	SAND: as above.	HNU - N/D.
-		-	-	-
60-		G	SAND: as above.	HNU - 0-2ppm.
-		G	SAND: as above; brown black, wet.	HNU - 2 ppm.
-		G	SAND: as above; black.	HNU - 100-200 ppm. TD-68.5 feet.

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MONITOR WELL COMPLETION LOG: SHEET 1/2

Monitor Well No. SMW-12B aka MW-12B Project Tesoro, AK-RCRA Compliance
 Location Tesoro-Kenai Refinery Log Recorded By G. Shaw
 Elevation (surface) approx. 133.7 ft. 12/1/96 Drilled By Bob Hughes/Anchor Point
 Elevation (measuring pt.) 136.07 ft. 12/1/96 Drilling 2650 129 (1984) RA 12-96-97

CONSTRUCTION

Construction Started 5/27/88: 8:00 am Completed 5/27/88: 11:20 am
 Total Depth Drilled (ft) 68.5 Hole Diameter 8 inch
 Drilling Method Hollow-stem auger
 Problems Encountered During Drilling Added 25 gallons of potable water to prevent sand heaving

Water Source for Drilling and Completion Procedures Tesoro Refinery Laboratory potable water

COMPLETION

Type of Completion Above-ground
 Top of Well Casing (ft) + 2.40 Depth (ft) 68.0
 Screen Interval (ft-ft) 57.44-68.00
 Interval of Grout (ft-ft) 0-52.0
 Interval of Bentonite (ft-ft) 52.0-55.0
 Interval of Sand Pack (ft-ft) 55.0-68.5

SAMPLING

Number and Type of Samples Collected 14 grab samples of cuttings
 Sample Interval (ft-ft) 5 foot composites
 Storage and/or Preservation Method(s) Plastic bags - no analytical samples

MATERIALS

Casing Type Schedule 40 PVC
 Screen Type 316L Stainless Steel Slot Size 0.020 inch
 Method of Joining Casing/Screen Threaded flush joints
 Type of Grout 50-50 mix Volclay (Bentonite) Grout and Portland Cement Source Amer. Colloid, Arlington, IL
 Amount 200 gallons
 Type of Bentonite 1/4" timed release bentonite pellets Source Environ. Instr., Concord, GA
 Amount 1 bucket
 Type of Sand Pack Unimin - Granusil #16 Source Unimin, Emmett, ID
 Amount 1.5 bags (100 lbs. each)
 Lithology of Sand Pack Silica

SECURITY MEASURES

Description Protective steel casing with locking cap
 Padlock ID No(s). Master #2016
 Location of Key(s) Damon King - Refinery Lab; D. Richmann - Radian

COMMENTS

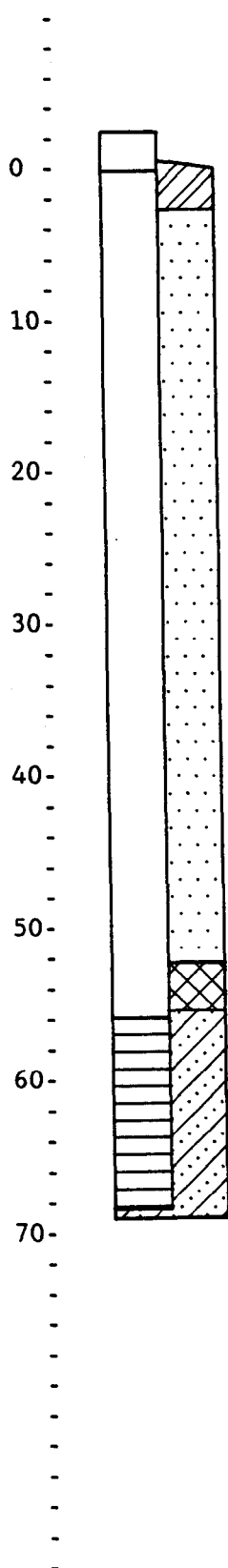
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MONITOR WELL COMPLETION LOG: SHEET 2/2

Boring or Well No. SMW-12B aka MW-12B Project Tesoro, AK - RCRA Compliance
 Location Tesoro-Kenai Refinery Log Recorded by G. Shaw

CONSTRUCTION SCHEMATIC (ft)



Static level of water before 49.00 (ft) and after
48.96 (ft) development

Development started 6/6/88 1:55 pm and ended 6/6/88 4:00pm

Water Quantity discharged during development 3.21 (ft³)

Type, size/capacity of pump or bailer used for developmen
Teflon, ball valve bailer, 1 L.

Depth of open hole inside well

Before development (ft) 67.1 After development (ft) 67.7

Development Record of Discharge and Sediment

<u>Vol.</u> <u>Bailed (L)</u>	<u>Time</u>	<u>Clar/Clr.</u> <u>Discharge</u>	<u>Odor of</u> <u>Discharge</u>	<u>Lithology/</u> <u>Grain Size</u>	<u>Conduc-</u> <u>pH</u>	<u>tivity</u>	<u>T(°F)</u>
1	2:20	Dark gray brown, very turbid, oil film on water,	Slight H.C. odor	Silt	9.0	280	42
79.5	3:00	Dark gray brown, very turbid, oil film on water	Slight H.C. odor	Silt	7.4	500	41
83.3	3:15	Dark gray brown, very turbid, oil film on water	Slight H.C. odor	Silt	7.5	530	41
87.1	3:27	Dark gray brown, very turbid, oil film on water	Slight H.C. odor	Silt	7.6	520	41
90.8	3:45	Dark gray brown, very turbid, oil film on water	Slight H.C. odor	Silt	7.6	520	41

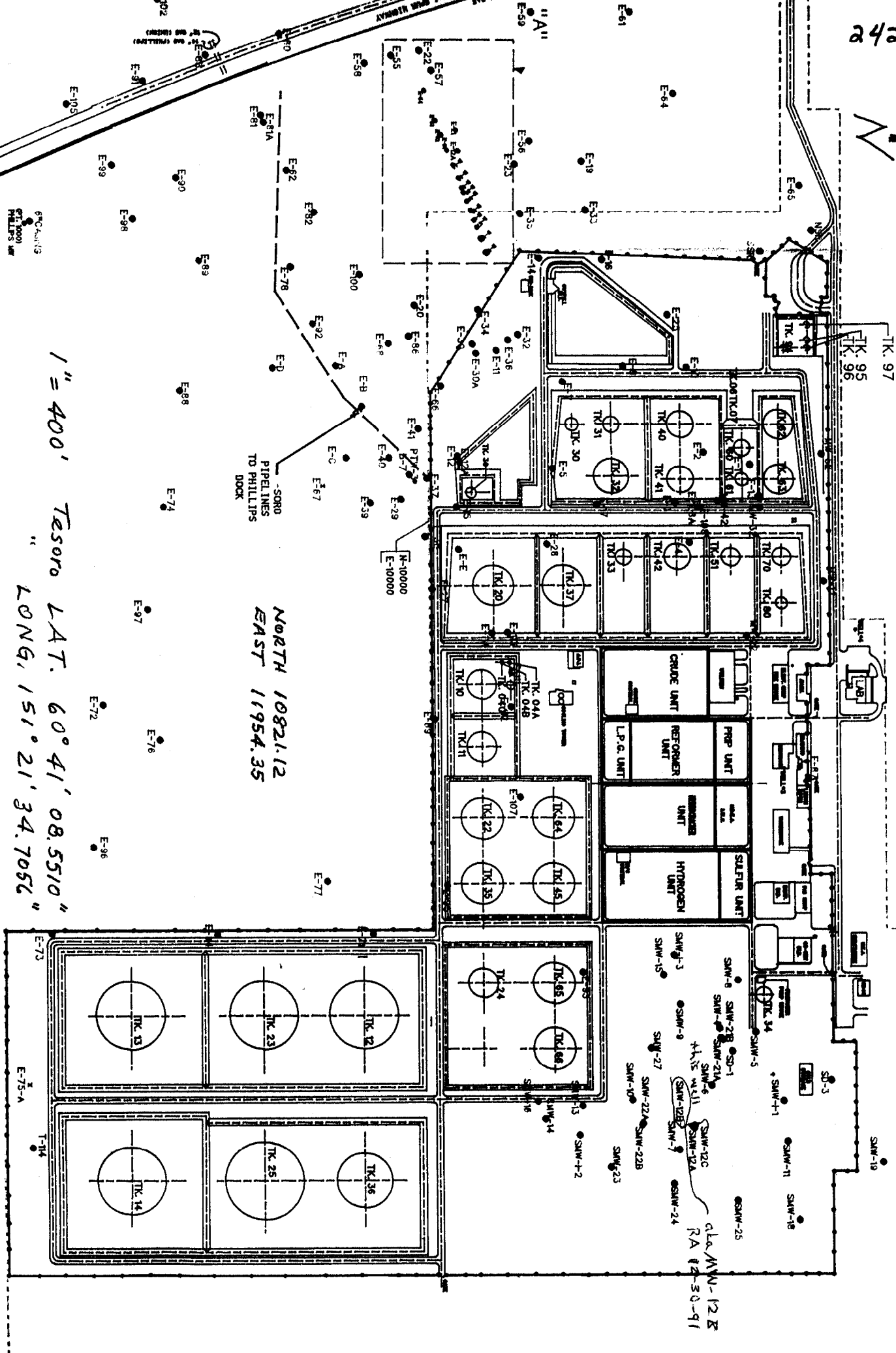
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SMW-20

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NORTH 10821.12
EAST 11954.35

1" = 400' Tesoro LAT. 60° 41' 08.5510"
" LONG. 151° 21' 34.7056"