24850

STATE OF ALASKA
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF MINING, LAND & WATER
Alaska Hydrologic Survey

WATER WELL LOG Revised 08/18/2016

Drilling Started: ____/____/_____ Completed: 8 / 26 / 1999 Pump Install: ____/____/_____

City/Borough	Subdivision	Block	Lot	Property Owner Name & Address
Kenai Peninsula Borough				TESORO ALASKA REFINERY ,

Well location: Latitude _____ **Longitude** _____
Meridian S Township 007N Range 012W Section 22 , _____ 1/4 of _____ 1/4 of _____ 1/4 of _____ 1/4

BOREHOLE DATA: (from ground surface)
Suggest T.**M. Hanna's hydrogeologic classification system***
https://my.ngwa.org/NC__Product?id=a185000000BYub3AAD

	Depth From	Depth To

Include description or sketch of well location (include road names, buildings, etc.):

North

AS 41.08.020(b)(4) and AAC 11 AAC 93.140(a) require that a copy of the well log be submitted to the Department of Natural Resources within **45 days of well completion**. Well logs may be submitted using the online well log reporting system available at:

https://dnr.alaska.gov/welts/

OR email electronic well logs to

dnr.water.reports@alaska.gov

Drilling method: ☐ Air rotary, ☐ Cable tool, ☐ Other _____
Well use: ☐ Public supply, ☐ Domestic, ☐ Reinjection, ☐ Hydrofracking ☐ Commercial, ☐ Observation/Monitoring, ☐ Test/Exploratory, ☐ Cooling, ☐ Irrigation/Agriculture, ☐ Grounding, ☐ Recharge/Aquifer Storage, ☐ Heating, ☐ Geothermal Exploration, ☐ Other _____
Fluids used: _____

Depth of hole: 140 ft Casing stickup: _____ft
Casing type: _____ Casing thickness: _____ inches
Casing diameter: _____ inches Casing depth: 109 ft
Liner type: _____ Depth: _____ ft Diameter: _____inches
Note: CASED TO 109 FT, SCREEN TO 139 FT

Well intake opening type: ☐ Open end, ☐ Open hole, ☒ Other screened
Screen type: _____, Screen mesh size: _____
Screen start: _____ ft, Screen stop:_____ ft, Perforated ☐ Yes ☒ No
Perforation description:_____ Perf from: _____ ft, Perf to: _____ft, Perf from: _____ ft, Perf to: _____ ft
Gravel packed ☐ Yes ☒ No Gravel start: _____ ft , Gravel stop:_____ ft
Note: _____

Static water (from top of casing): 57 ft on____/____/_____ Artesian well ☐
Pumping level & yield: _____ feet after _____ hours at _____ gpm
Method of testing:_____
Development method:_____ Duration: _____
Recovery rate: _____ gpm

Grout type: _____ Volume _____
Depth: From _____ft, To _____ft

Final pump intake depth: _____ ft Model: _____
Pump size: _____ hp Brand name: _____

Was well disinfected upon completion? ☐ Yes ☒ No
Method of disinfection: _____
Was water quality tested? ☐ Yes ☒ No
Water quality parameters tested: _____

Well driller name: .....
Company name: HUGHES DRILLING .....
Mailing address:.....
City: _____ State: AK Zip: _____
Phone number: (_____) _____- _____
Driller's signature: _____
Date: _____/_____/_____

Anchorage Municipal Code 15.55.060(I) and North Pole Ordinance 13.32.030(D) require that a copy of this well log be submitted to the Development Services Department/City within **30 days of well completion**.

City Permit Number: _____
Date of Issue: _____/____/_____

Parcel Identification Number: _____-_____-_____

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

BORING AND WELL CONSTRUCTION LOG

WELL TW-5

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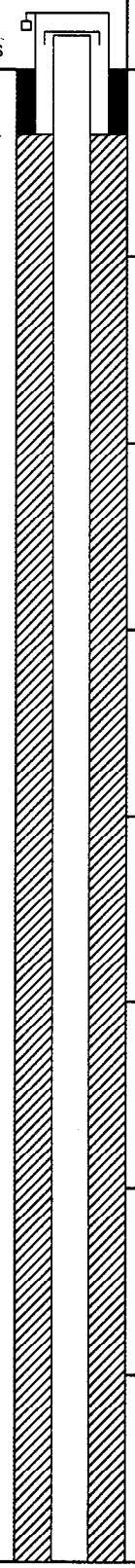
Elevation Ground: 93.9
Elevation TOC: NM
Total BH Depth: 140 ft.
Total Well Depth: 139 ft.

CLIENT: Tesoro Alaska Co. DRILLER: Hughes Drilling
PROJECT SITE: Refinery DRILLING METHOD: Hollow-stem auger
PROJECT NO.: 01-19.17 SAMPLING METHOD: 2-in split spoon
AREA: PIRM START DATE: 8/24/99
GEOLOGIST: J. Lipka END DATE: 8/26/99



DEPTH (FEET)	SAMPLE ID	BLOW COUNT (PER 6 INCHES)	SAMPLE INTERVAL/RECOVERY	PID/FID READINGS (PPM)	USCS	
0		nm	ns	nm	sw	Loose, brown, fine to coarse SAND with 30% fine to coarse gravel, wet, no odor.
5		nm	ns	nm	ml	Soft, brown SILT with 20% very fine to medium sand, wet, no odor.
10		nm	ns	nm		Medium dense, gray-brown, fine to coarse SAND with 30% fine to coarse gravel and 5% silt, wet, no odor.
15		nm	ns	nm		Same: with 10% fine to coarse gravel, no silt, moist.
20		nm	ns	nm		Same: with 30% fine to coarse gravel, no silt, moist. @ 22 feet: cobbles.
25		nm	ns	nm	sw	Same: as above.
30		nm	ns	nm		Same: color change to brown-gray with 5% fine to coarse gravel.
35		nm	ns	nm		Same as above.
40						

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PROJECT NO.: 01-19.17 SAMPLING METHOD: 2-in split spoon

AREA: PIRM START DATE: 8/24/99

GEOLOGIST: J. Lipka END DATE: 8/26/99

Well Materials	DEPTH (FEET)	SAMPLE ID	BLOW COUNT (PER 6 INCHES)	SAMPLE INTERVAL/RECOVERY	PID/FID READINGS (PPM)	USCS	
	40		nm	ns	nm	40.95	Medium dense, gray, fine to coarse SAND with less than 5% fine gravel, moist, no odor.
	45		nm	ns	nm		Same: color change to gray-brown with 20% fine to coarse gravel and less than 5% silt, wet.
Volclay Grout	50		nm	ns	nm	sw	Same: color change to gray wtih 30% fine to coarse gravel and less than 5% silt, saturated.
	55		nm	ns	nm	57.3 uca	Same as above.
	60		nm	ns	nm		
Riser Pipe 4-inch diameter; flush-threaded; Schedule 40 PVC	65		nm	ns	nm	cl	Stiff, gray CLAY.
	70		nm	ns	nm	sw	Medium dense, gray, fine to coarse SAND with 20% fine to coarse gravel, saturated, no odor.
	75		nm	ns	nm		Same: with 30% fine gravel.
	80						

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AREA: PIRM START DATE: 8/24/99

GEOLOGIST: J. Lipka END DATE: 8/26/99

Well Materials	DEPTH (FEET)	SAMPLE ID	BLOW COUNT (PER 6 INCHES)	SAMPLE INTERVAL/RECOVERY	PID/FID READINGS (PPM)	USCS	
Volclay Grout	80		nm	ns	nm	SW	Medium dense, dark gray, very fine to coarse SAND wtih 30% fine gravel and less than 5% silt, saturated, no odor.
	85		4 6 9 12		0.0		Hard, gray CLAY, pl+, massive, saturated to wet. @ 86.5 feet: with 5% matrix-support, fine, round to subround gravel.
Riser Pipe 4-inch diameter; flush-threaded; Schedule 40 PVC	90		3 4 6 8		0.0		@ 91 feet: with <0.25-inch very fine to medium sand interbed. @ 91.5 feet: very fine sand parting.
	95		5 7 9 14		0.0	CL	Same as above.
	100		6 6 6 6		0.0		Same as above.
Bentonite Seal 0.25-inch diameter coated pellets	105		4 8 11		0.0		Same: Slightly stiff with very fine sand partings.
						SW ML	Loose, gray, fine to coarse SAND with 5% fine gravel and wood fragments, saturated.
Sand Pack 10/20 Colorado Silica Sand	110		2 3 7		0.0		Soft, gray SILT, with 40% very fine sand, pl-, saturated. Loose, gray, fine to coase SAND with 20% fine to coarse gravel (up to 0.75 inch), saturated.
Well Screen 30 feet; 4-inch diameter; flush-threaded 0.030-inch slots; Schedule 40 PVC	115		6 6 6	nr	nm	SW	No return.
	120						

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PROJECT NO.: 01-19.17 SAMPLING METHOD: 2-in split spoon

AREA: PIRM START DATE: 8/24/99

GEOLOGIST: J. Lipka END DATE: 8/26/99

Well Materials	DEPTH (FEET)	SAMPLE ID	BLOW COUNT (PER 6 INCHES)	SAMPLE INTERVAL/RECOVERY	PID/FID READINGS (PPM)	USCS	
Sand Pack 10/20 Colorado Silica Sand	120						Gray, fine to coarse SAND with abundant carbonized wood fragments coating sampler.
	125		8 6 for 2"	nr	nm		No return.
Well Screen 30 feet; 4-inch diameter; 0.030-inch slots; Schedule 40 PVC	130		nm	ns	nm	SW	Note: Split spoon sampler coated with gray, fine to coarse sand with abundant carbonized wood fragments.
	135		5 5 4 6	nr	nm		No return.
Bottom Cap 4-inch welded stainless steel							Note: Split spoon sampler coated with gray, fine to coarse sand with abundant carbonized wood fragments.
Slough/ Slump	140						Total depth = 140 feet
	145						
	150						
	155						
	160						

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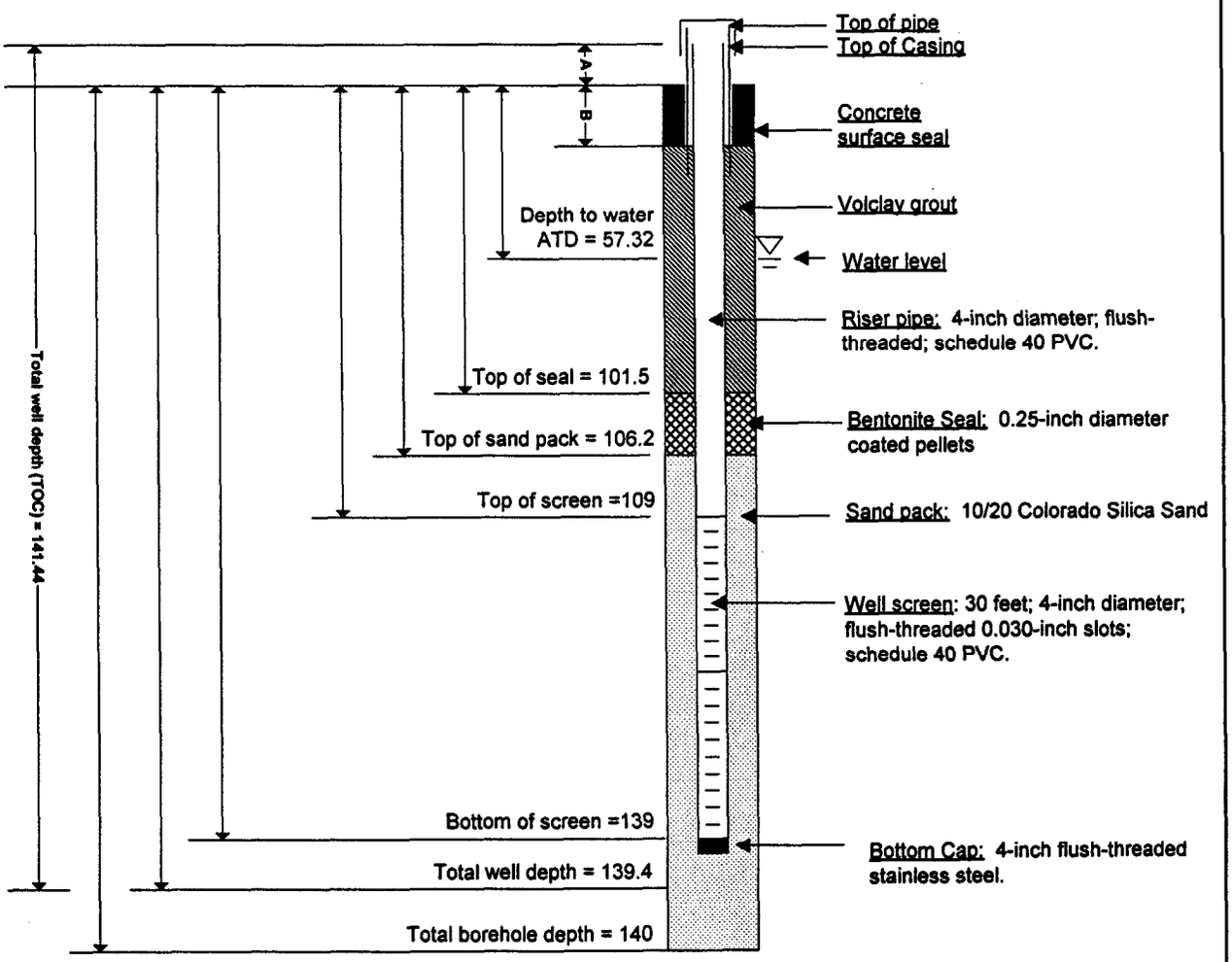
As-Built Diagram

Well TW-5

Well Location: PIRM	**Date Installed: 8/26/99**	Depth Drilled: 140 ft.	TD After Development: 139 ft.
Ground Elevation: 93.9	**Project Number: 01-19.17**	Drilling Rig: CME-75	Drilling Method: HSA, 6.5" x 10"
TOC Elevation: NM	**Geologist: J. Lipka**	Hole Diameter: 10"	Soil Sampler Type: Splitspoon
Northing: 9493.7708	**Drilling Company: Hughes**	Number of Soil Samples: 0	Elevation Datum: MLLW
Easting: 7298.9340	**Driller: P. Kelly**	Depth to Water at Time of Drilling (feet, bgs): 57.32 ft.	Checked by:

TESORO REFINERY
OFF SAGMATOF RD, PIRM

A = 3.00 feet (approximate stick-up)
B = 1.84



TOC = top of casing

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KENT & SULLIVAN, INC.

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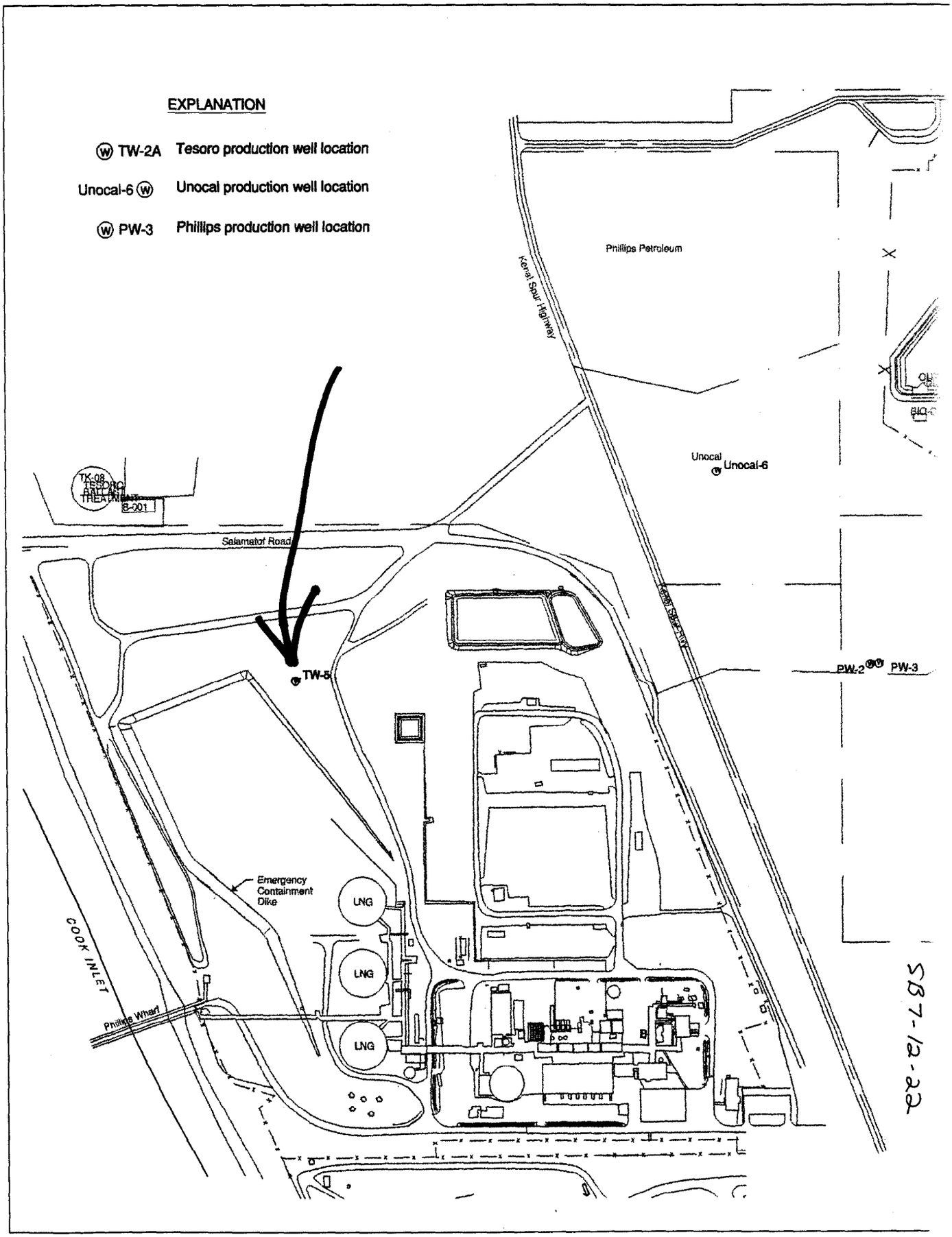

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