DEQ

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY - OFFICE OF GEOLOGICAL SURVEY

RECORD OF WELL DRILLING OR DEEPENING

Required by authority of Part 615 Supervisor of Wells or Part 625 Mineral Wells, of Act 451 PA 1994, as amended. Non-submission and/or falsification of this information may result in fines and/or imprisonment.

Permit number/Deepening number: 60076

(Submit 3 copies within 60 days of drilling completion.)

☒ Part 615 Oil/Gas Well ☐ Part 625 Mineral Well

API number: 021-075-60076-00-00

Well name and number: Haystead 1-9

Name and address of permittee:
West Bay Exploration
13685 S. West Bay Shore Dr #200
Traverse City, MI 49684

Surface location: NE 1/4 of NW 1/4 of SW 1/4 Section 9 T4S R2E

Township: Norvell County: Jackson

Footages North/South: 2472 ft. from South line and East/West: 1212 ft. from West line of sec.

Name and address of drilling contractor:
Advanced Energy Services
PO Box 85
S. Boardman, MI 49680

Directionally drilled (check one): ☒ Yes ☐ No

Previous permit numbers: none

Subsurface location (if directionally drilled): SW1/4 of SW1/4 of NW 1/4 Section 9 T 4S R 2E

Township: Norvell County: Jackson

Footages North/South: 2310 ft. from North line and East/West: 330 ft. from West line of sec.

Date drilling began: 5/20/10

Date drilling completed: 5/31/10

Total depth of well: Driller 4804md Log 4804md

Formation at total depth: PDC

Elevations: K.B. 967.26 ft. R.F. 966.26 ft. R.T. ft. Grd 966.26 ft

Feet drilled - cable tools: from to

Feet drilled - rotary tools: from surf to 4804md

Casing, Casing Liners and Cementing, Operating Strings

Size	Where set	Cement	T.O.C.	Ft. pulled
11 3/4	425	175 Lite/150 A		
8 5/8	3340	600 Lite/200 A		
5 1/2	4572	1st 100 Flowstop		
		2nd 200 HalCem		

Water Fill Up (F.U.) or Lost Circulation (L.C.) (X)

Formation	F.U.	L.C.	Depth	Amount
no fluid loss				

Gross Pay Intervals

Formation	Oil or Gas	From	To
none			

All Other Oil and Gas Shows Observed or Logged

Formation	Oil or Gas	Depth	Where Observed (X): Samples	Odor	Pits	Mud Line	Gas Log	Fill Up
Trenton	gas	4386						

Depth Correction

Depth	Correction

Deviation Survey

Run at	Degrees

Plugged Back

Yes	No	Depth

Geophysical / Mechanical Logs (list each type run)

Brand	Log types	Logged intervals
Baker Atlas	CNL/Density/GR	surf-TD

Notice: Report complete sample and formation record, coring record, and drill stem test information on reverse side.

CERTIFICATION "I state that I am authorized by said owner. This report was prepared under my supervision and direction. The facts stated herein are true, accurate and complete to the best of my knowledge."

Date	Name and title (print)	Signature
10/6/10	Trish Rising, Geologist	T. Rising

OCT 22 2010

Submit to: OFFICE OF GEOLOGICAL SURVEY,
MICHIGAN DEPT OF ENVIRONMENTAL QUALITY
PO BOX 30256, LANSING, MI 48909-7756

EQP 7200-5 (rev. 8/2004)

FORMATION RECORD

Attach additional sheets if necessary

API number	Permit number/Deepening number
	60076

Elevation used	Geologist name	Tops taken from
967.26	Trish Rising, West Bay Exploration	☐ Driller's log ☒ Sample log ☒ Electric log

Note: if well directionally drilled, add true vertical depth formation tops where appropriate

From	To	Formation (type, color, hardness)
surf	88	unconsolidated drift
88	271	Marshall/Coldwater Fm sandstone, siltstone and shale
271	1206	Coldwater Shale shale-blue/gry, vfxln, mhd
1206	1217	Sunbury Shale shale-brn/blk, silty, mhd, arg
1217	1283	Berea not observed
1283	1327	Bedford Shale not observed
1327	1524	Antrim Fm shale-drk brn/blk, mhd, org int.
1524	1563	Traverse Fm limestone and dolomite-drk brn/md brn to gray, dns
1563	1687	Traverse LS limestone-med/lt brn, vfxln, hrd
1687	1762	
1762	2165	Dundee Fm limestone-lt/med gray/brn, hrd
1848	1878	Detroit River Grp not observed
1878	2165	Detroit River Anhy not observed
2165	2352	Bois Blanc/Bass Island dolomite and cherty intervals-lt/med brn and white, dns, hrd
2352		Salina Grp
2686	2782	A2 not observed
2782	3270	Niagran limestone and dolomite-buff to bream colored, brn, arg intervals, vfxln, mhd
3270	3775	Clinton Fm dolomite with shaley intervals-drk gray grading to lt gry, dnx
3775	4095	Utica Fm shale-dr gry/blk, vfxln, hard
4095	4425	Trenton (3915-4245tvd) dolomite and limestone, lt/drk brn, vfxln, mhd, cln, scat ddo stn, pyr and foss
4425	4784	Black River Fm (4245-4604tvd) limestone, shale, gry/blk, vfxln mhd, arg, scat foss, tr dolomite
4784	4790	Glenwood (4604-4610tvd) shale and dolomite, bluish/green vfxln, soft, cln

From	To	Formation (type, color, hardness)

If well was cored, attach core description

DRILL STEM TEST DATA

OCT 2 2 2010

4790	4804	PDC (4610-td) samples observed in circ samples at td; dolomite and shale	

LIST ATTACHMENTS

OFFICE OF GEOLOGICAL SURVEY USE ONLY

Reviewed by

Date of review

OCT 2 2 2010

DEQ

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY – OFFICE OF GEOLOGICAL SURVEY

RECORD OF WELL COMPLETION

By authority of Part 615 or Part 625 of Act 451 PA 1994, as amended. Non-submission and/or falsification of this information may result in fines and/or imprisonment.

(Submit 3 copies within 60 days of well completion.)

☒ Part 615 Oil/Gas Well ☐ Part 625 Mineral Well

Permit number/deepening permit no.	API number
60076	21-075-60076-00-00

Type of well (after completion): Oil & Gas

Well name & number: Haystead 1-9

Name and address of permittee:
West Bay Exploration
13685 S. West Bay Shore #200
Traverse City, MI 49684

Directionally drilled (check one)	Previous permit numbers	Total depth of well
☒ Yes ☐ No	none	M.D. 4804md T.V.D. 4610tvd

Surface location	Subsurface location (if directionally drilled)
NE ¼ of NW ¼ of SW ¼ Section 9 T 4S R 2E	SW ¼ of SW ¼ of NW ¼ Section 9 T 4S R 2E

Township	County	Township	County
Norvell	Jackson	Norvell	Jackson

Footages: North/South East/West	Footages: North/South East/West
2472 Ft. from South line and 1212 Ft. from West line of Sec.	2310 Ft. from North line and 330 Ft. from West line of Sec.

Part 615 - oil/gas wells			Part 625 - mineral wells		
Date well completed	Producing formation(s)	Injection formation(s)	Date of first injection	Disposal formation(s)	Solution formation(s)
not	none				

COMPLETION INTERVALS(S)

Date	Number holes	Perforation or open hole interval	Open Yes	Open No
		not completed		

STIMULATION BY ACID OR FRACTURING

Date	Interval treated	Materials and amount used
	none	

PRODUCTION TEST DATA

Oil Bbls/day	Gravity °API	Condensate Bbls/day	Gas MCF/day	Water Bbls/day	H_2S Grains/100 ft^3.	B.H.P. and depth
0	-	0	0	0	0	-

CERTIFICATION "I state that I am authorized by said owner. This report was prepared under my supervision and direction. The facts stated herein are true, accurate and complete to the best of my knowledge."

Name and title (print or type)	Signature	Date
Trish Rising, Field Geologist	T. Rising	10/6/10

Submit to: OFFICE OF GEOLOGICAL SURVEY
MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
PO BOX 30256
LANSING MI 48909-7756

OCT 22 2010

EQP 7130 (rev. 8/2004)

DEQ

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY - OFFICE OF GEOLOGICAL SURVEY

CERTIFICATION OF CASING AND SEALING OF SURFACE HOLE

Required by authority of Part 615 Supervisor of Wells or Part 625 Mineral Wells, of Act 451 PA 1994, as amended Non-submission and/or falsification of this information may result in fines and/or imprisonment

Permit number: 60076

Well name: Haystead 1-9

Township: Norvell

County: Jackson

Surface location: Ne 1/4 of NW 1/4 of SW1/4 Section 9 T4S R2E

Name and address of permittee:
West Bay Exploration
13685 S. West Bay Shore Dr #200
Traverse City, MI 49684

Name and address of drilling contractor:
Advanced Energy Services
PO Box 85
S. Boardman, MI 49680

SURFACE HOLE

Hole diameter (Note reductions	Depth to bedrock	Base of specified aquifer (see permit)	Total depth of surface hole	Formation at surface casing seat	Date drilling completed
14 3/4	88	Marshall	425	Coldwater Shale	6/7/10

Narrative of unusual drilling circumstances or problems encountered
none

Name and address of geologist/mud logger
Trish Rising, Field Geolgist
12180 Ladd Rd
Brooklyn, MI
49230

Signature: T. Rising

Date: 10/19/10

SURFACE CASING

Casing O.D. (in)	Casing depth	Cement type and additives	Amount of cement (sacks)	Volume (bbls) Pumped	Volume (bbls) Returned to surface	Plug down date & time
11 3/4	425	Lite	175		40Bbls	10am 5/20/10
		Class A	150			

Narrative of problems encountered running or cementing casing. Note any cement fallback, grouting, or lost circulation zones.
none

I AM RESPONSIBLE FOR THIS REPORT. THE INFORMATION IS COMPLETE AND CORRECT.

Signature of permittee or company officer: T. Rising

Date

Submit the original and one copy, typewritten or legible printed, within 30 days after drilling is completed to:
OFFICE OF GEOLOGICAL SURVEY
MICHIGAN DEPT OF ENVIRONMENTAL QUALITY
PO BOX 30256
LANSING MI 48909-7756

OCT 22 2010

EQP 7200-12 (rev. 8/2004)

60076

Directional Drilling Contractors, LLC.

Job Number: DR100148
Company: WEST BAY EXPLORATION
Lease/Well: HAYSTEAD 1-9
Location: NORVELL TWP., JACKSON CO.
Rig Name: ADVANCED # 2
RKB:
G.L. or M.S.L.:

State/Country: MICHIGAN / USA
Declination: 6.36 degrees west
Grid:
File name: C:\WINSERVE\ASDRIL~1\2010\HAYSTD19.SVY
Date/Time: 02-Jun-10 / 11:34
Curve Name: HAYSTEAD 1-9 (as drilled)

Directional Drilling Contractors
SURVEY REPORT

WINSERVE SURVEY CALCULATIONS
Minimum Curvature Method
Vertical Section Plane 299.55
Vertical Section Referenced to Wellhead
Rectangular Coordinates Referenced to Wellhead

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	N-S FT	E-W FT	Vertical Section FT	CLOSURE Distance FT	CLOSURE Direction Deg	Dogleg Severity Deg/100
KOP - ASSUMED VERTICAL @ 500 MD									
500.00	.00	.00	500.00	.00	.00	.00	.00	.00	.00
545.00	3.80	303.40	544.97	.82	-1.25	1.49	1.49	303.40	8.44
577.00	5.20	307.60	576.87	2.29	-3.28	3.98	4.00	304.92	4.49
607.00	6.50	308.30	606.71	4.17	-5.69	7.01	7.05	306.25	4.34
638.00	8.20	309.00	637.45	6.65	-8.78	10.92	11.02	307.13	5.49
670.00	9.70	310.40	669.06	9.83	-12.61	15.82	15.99	307.95	4.74
701.00	11.20	310.40	699.55	13.48	-16.89	21.34	21.61	308.58	4.84
732.00	12.90	309.30	729.87	17.62	-21.86	27.71	28.08	308.87	5.53
763.00	14.90	309.00	759.96	22.32	-27.64	35.05	35.53	308.92	6.46
793.00	16.80	307.60	788.81	27.40	-34.07	43.15	43.72	308.80	6.46
824.00	18.70	305.10	818.34	32.99	-41.69	52.53	53.16	308.35	6.60
855.00	20.50	301.60	847.54	38.69	-50.38	62.91	63.52	307.52	6.93
886.00	21.30	298.40	876.50	44.21	-59.96	73.96	74.49	306.41	4.50
917.00	21.30	297.00	905.38	49.45	-69.93	85.22	85.64	305.27	1.64
948.00	21.50	296.70	934.25	54.55	-80.02	96.51	96.84	304.29	.74
978.00	21.50	296.70	962.16	59.49	-89.84	107.50	107.75	303.51	.00
1010.00	21.50	296.30	991.93	64.73	-100.34	119.21	119.40	302.83	.46
1071.00	21.90	296.00	1048.61	74.67	-120.58	141.72	141.83	301.77	.68
1132.00	22.00	294.60	1105.19	84.41	-141.19	164.46	164.50	300.87	.87
1194.00	21.40	297.00	1162.80	94.38	-161.83	187.33	187.34	300.25	1.73
1255.00	20.60	298.80	1219.74	104.60	-181.15	209.18	209.18	300.00	1.68

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Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	N-S FT	E-W FT	Vertical Section FT	CLOSURE Distance FT	CLOSURE Direction Deg	Dogleg Severity Deg/100
1316.00	21.00	299.10	1276.77	115.09	-200.11	230.84	230.84	299.90	.68
1347.00	21.10	298.80	1305.70	120.48	-209.85	241.97	241.98	299.86	.47
1378.00	20.90	298.80	1334.64	125.83	-219.59	253.08	253.08	299.81	.65
1409.00	21.60	299.90	1363.53	131.34	-229.38	264.32	264.32	299.79	2.60
1439.00	21.50	299.10	1391.44	136.76	-238.97	275.33	275.34	299.78	1.03
1470.00	22.10	299.50	1420.22	142.40	-249.01	286.85	286.85	299.76	1.99
1501.00	22.40	299.90	1448.91	148.21	-259.20	298.58	298.59	299.76	1.08
1531.00	22.50	299.10	1476.64	153.86	-269.17	310.04	310.04	299.75	1.07
1562.00	22.60	299.10	1505.27	159.64	-279.56	321.93	321.93	299.73	.32
1593.00	22.80	298.80	1533.87	165.43	-290.03	333.89	333.89	299.70	.75
1623.00	23.00	298.10	1561.50	170.99	-300.29	345.56	345.56	299.66	1.13
1654.00	22.90	297.40	1590.05	176.62	-310.99	357.64	357.64	299.59	.94
1685.00	21.40	297.70	1618.76	182.02	-321.35	369.32	369.32	299.53	4.85
1731.00	20.80	297.70	1661.67	189.72	-336.02	385.88	385.88	299.45	1.30
1792.00	20.60	300.20	1718.74	200.15	-354.88	407.43	407.43	299.42	1.49
1823.00	21.40	301.30	1747.68	205.83	-364.43	418.54	418.54	299.46	2.88
1853.00	21.80	301.30	1775.57	211.57	-373.86	429.58	429.58	299.51	1.33
1884.00	22.30	301.30	1804.30	217.62	-383.81	441.21	441.21	299.55	1.61
1915.00	22.30	300.20	1832.99	223.63	-393.92	452.97	452.97	299.58	1.35
1946.00	22.90	300.60	1861.61	229.66	-404.19	464.88	464.88	299.61	2.00
1976.00	23.00	299.50	1889.23	235.52	-414.32	476.58	476.58	299.62	1.47
2007.00	23.10	298.80	1917.76	241.43	-424.92	488.71	488.71	299.60	.94
2038.00	23.10	298.10	1946.27	247.22	-435.61	500.87	500.87	299.58	.89
2068.00	22.20	297.40	1973.96	252.60	-445.83	512.42	512.42	299.54	3.13
2099.00	21.90	297.40	2002.69	257.96	-456.17	524.05	524.05	299.49	.97
2130.00	21.00	297.40	2031.54	263.18	-466.23	535.38	535.38	299.44	2.90
2160.00	21.00	298.10	2059.55	268.18	-475.74	546.13	546.13	299.41	.84
2191.00	20.80	299.50	2088.51	273.51	-485.43	557.18	557.18	299.40	1.74
2222.00	21.00	299.90	2117.47	278.99	-495.04	568.24	568.24	299.40	.79
2253.00	21.40	299.90	2146.37	284.58	-504.76	579.45	579.45	299.41	1.29
2283.00	21.90	299.50	2174.26	290.06	-514.37	590.52	590.52	299.42	1.74
2314.00	22.20	299.10	2202.99	295.76	-524.52	602.16	602.16	299.42	1.08
2344.00	21.70	298.80	2230.81	301.18	-534.33	613.37	613.37	299.41	1.71
2375.00	21.60	298.40	2259.63	306.66	-544.38	624.81	624.81	299.39	.58
2406.00	21.50	298.10	2288.46	312.05	-554.41	636.19	636.19	299.37	.48
2437.00	20.80	298.40	2317.37	317.34	-564.26	647.37	647.38	299.35	2.28
2467.00	20.40	298.80	2345.45	322.39	-573.53	657.93	657.93	299.34	1.41
2498.00	20.40	300.60	2374.51	327.75	-582.91	668.73	668.73	299.35	2.02
2529.00	20.70	301.60	2403.54	333.37	-592.23	679.61	679.61	299.38	1.49
2559.00	21.40	302.30	2431.53	339.07	-601.37	690.37	690.37	299.42	2.48
2590.00	21.40	301.30	2460.40	345.03	-610.98	701.67	701.68	299.45	1.18
2621.00	21.20	300.60	2489.28	350.82	-620.64	712.93	712.93	299.48	1.04
2652.00	21.40	299.90	2518.16	356.50	-630.37	724.19	724.19	299.49	1.04
2682.00	21.80	299.90	2546.06	362.00	-639.94	735.24	735.24	299.50	1.33
2713.00	22.40	299.90	2574.78	367.81	-650.05	746.90	746.90	299.50	1.94

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Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	N-S FT	E-W FT	Vertical Section FT	CLOSURE Distance FT	CLOSURE Direction Deg	Dogleg Severity Deg/100
2744.00	23.00	299.50	2603.38	373.74	-660.44	758.86	758.86	299.51	2.00
2774.00	23.20	298.80	2630.97	379.47	-670.72	770.63	770.63	299.50	1.13
2805.00	23.40	298.40	2659.44	385.34	-681.49	782.89	782.89	299.49	.82
2836.00	23.70	298.80	2687.86	391.27	-692.36	795.27	795.28	299.47	1.10
2866.00	22.70	300.90	2715.43	397.15	-702.62	807.09	807.09	299.48	4.33
2897.00	21.90	301.60	2744.12	403.25	-712.67	818.85	818.85	299.50	2.72
2928.00	21.80	301.60	2772.89	409.30	-722.50	830.38	830.38	299.53	.32
2959.00	22.00	301.30	2801.65	415.33	-732.36	841.94	841.94	299.56	.74
2989.00	21.30	300.20	2829.54	420.99	-741.87	853.00	853.00	299.57	2.70
3020.00	20.90	298.80	2858.46	426.49	-751.59	864.16	864.16	299.57	2.08
3051.00	20.00	297.40	2887.50	431.59	-761.14	874.99	874.99	299.55	3.30
3081.00	19.30	296.70	2915.76	436.18	-770.12	885.06	885.06	299.53	2.46
3112.00	18.30	298.40	2945.10	440.80	-778.98	895.05	895.05	299.50	3.68
3143.00	17.80	299.50	2974.58	445.44	-787.39	904.65	904.65	299.50	1.95
3173.00	17.00	298.40	3003.20	449.79	-795.23	913.62	913.62	299.49	2.88
3204.00	16.40	298.40	3032.90	454.02	-803.07	922.53	922.53	299.48	1.94
3235.00	15.70	297.70	3062.69	458.06	-810.63	931.10	931.10	299.47	2.34
3265.00	15.10	297.70	3091.61	461.76	-817.69	939.06	939.06	299.45	2.00
3293.00	14.50	298.10	3118.68	465.10	-824.01	946.21	946.21	299.44	2.17
3374.00	12.70	299.90	3197.41	474.32	-840.67	965.25	965.25	299.43	2.28
3405.00	11.70	299.10	3227.71	477.55	-846.37	971.80	971.80	299.43	3.27
3436.00	10.60	299.90	3258.12	480.50	-851.59	977.80	977.80	299.43	3.58
3466.00	10.20	300.90	3287.63	483.24	-856.26	983.21	983.21	299.44	1.46
3497.00	9.80	302.00	3318.16	486.05	-860.86	988.59	988.59	299.45	1.43
3528.00	8.80	304.10	3348.75	488.77	-865.06	993.59	993.59	299.47	3.41
3558.00	7.80	302.30	3378.44	491.15	-868.68	997.91	997.91	299.48	3.44
3589.00	6.90	300.90	3409.18	493.23	-872.05	1001.87	1001.87	299.49	2.96
3620.00	6.10	300.20	3439.98	495.01	-875.08	1005.38	1005.38	299.50	2.59
3650.00	5.30	300.90	3469.83	496.53	-877.64	1008.36	1008.36	299.50	2.68
3681.00	4.70	302.00	3500.71	497.93	-879.95	1011.06	1011.06	299.50	1.96
3712.00	3.90	306.50	3531.63	499.23	-881.87	1013.38	1013.38	299.51	2.80
3743.00	2.90	313.60	3562.57	500.40	-883.29	1015.18	1015.18	299.53	3.49
3773.00	2.00	321.30	3592.54	501.33	-884.16	1016.41	1016.41	299.55	3.19
3804.00	1.10	330.10	3623.53	502.01	-884.65	1017.17	1017.17	299.57	2.99
3834.00	.40	36.50	3653.53	502.35	-884.73	1017.40	1017.40	299.59	3.36
3882.00	.40	36.50	3701.53	502.62	-884.53	1017.36	1017.36	299.61	.00
4794.00	.40	36.50	4613.51	507.74	-880.75	1016.59	1016.62	299.96	.00
PROJECTED TD @ 4804 MD									
4804.00	.40	36.50	4623.51	507.79	-880.70	1016.58	1016.61	299.97	.00

NOV 17 2010

TD 4829 4750 500 - 882

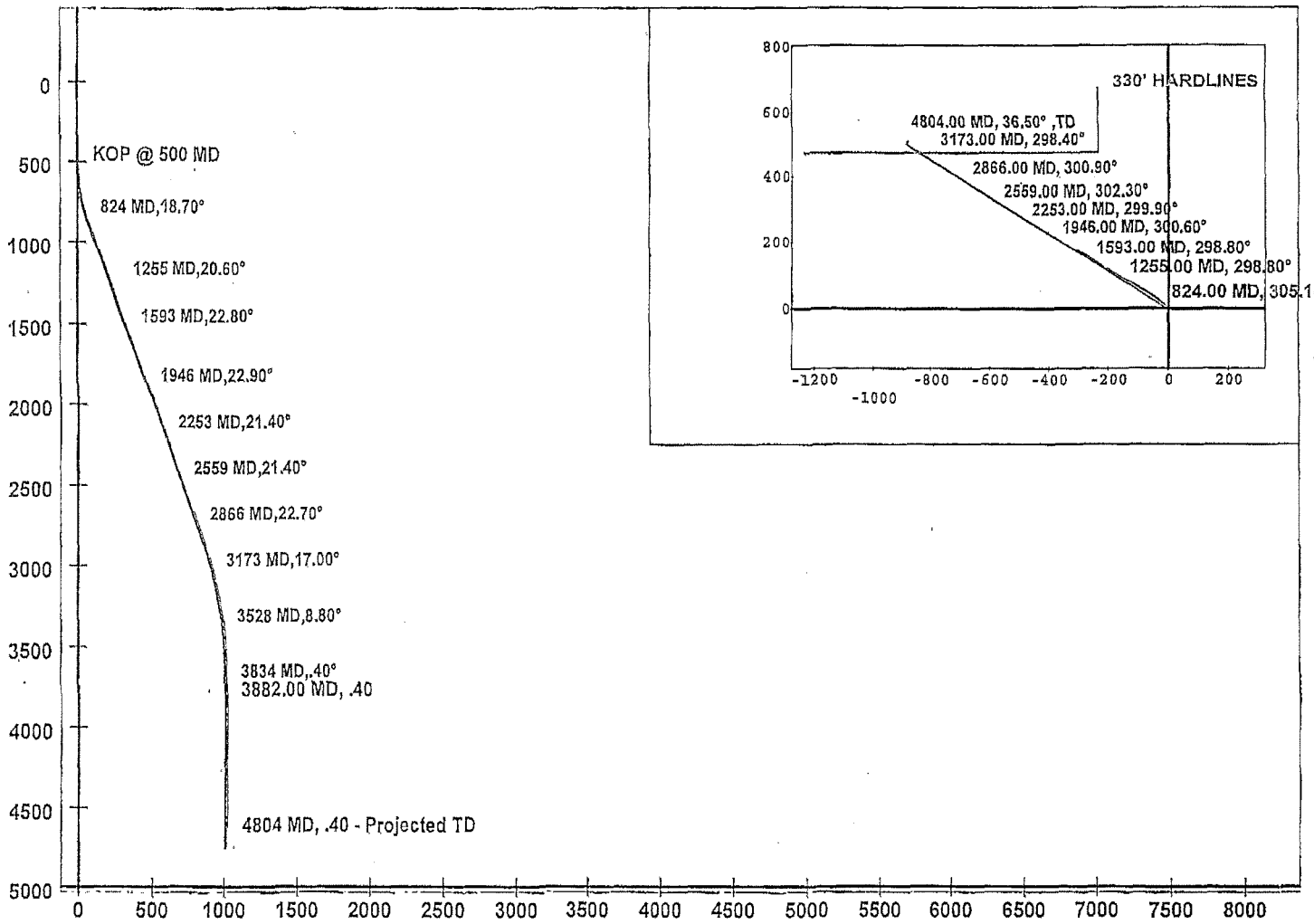
60076

Job Number: DR100148
Company: WEST BAY EXPLORATION
Lease/Well: HAYSTEAD 1-9
Location: NORVELL TWP., JACKSON CO.
Rig Name: ADVANCED # 2
State/Country: MICHIGAN / USA

Declination: 6.36 degrees west
File name: C:\WINSERVE\ASDRIL~1\2
Date/Time: June 02, 2010

DDC
Directional Drilling Contractors, LLC.

NOV 17 2010



BOTTOM HOLE LOCATION CORRECTION

Permit 1000716 Well Type DH Date 12-6-10 Checked by: KR 12-9

Operator WEST BAY EXPLORATION

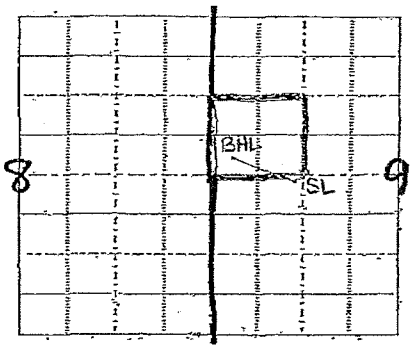
Well Name & Number HAYSTEAD 1-9

Surface Location NE ¼ NW ¼ SW ¼ Sec. 9 T. 4S R. 2E

NORVELL Township, JACKSON County

2472 ft. from the S line and 1212 ft. from the W line of the Sec.

Deepest Total Depth	True Vertical Depth	Rectangular Coordinates
4804'	4624'	508' N & 881' W



Bottom Hole Location at Reported Total Depth

SW ¼ SW ¼ NW ¼ Sec. 9

T. 4S R. 2E

NORVELL Township, JACKSON County

2302 ft. from the N line and 331 ft. from the W line of the Section and

363 ft. from the S line and 331 ft. from the W line of the drilling unit

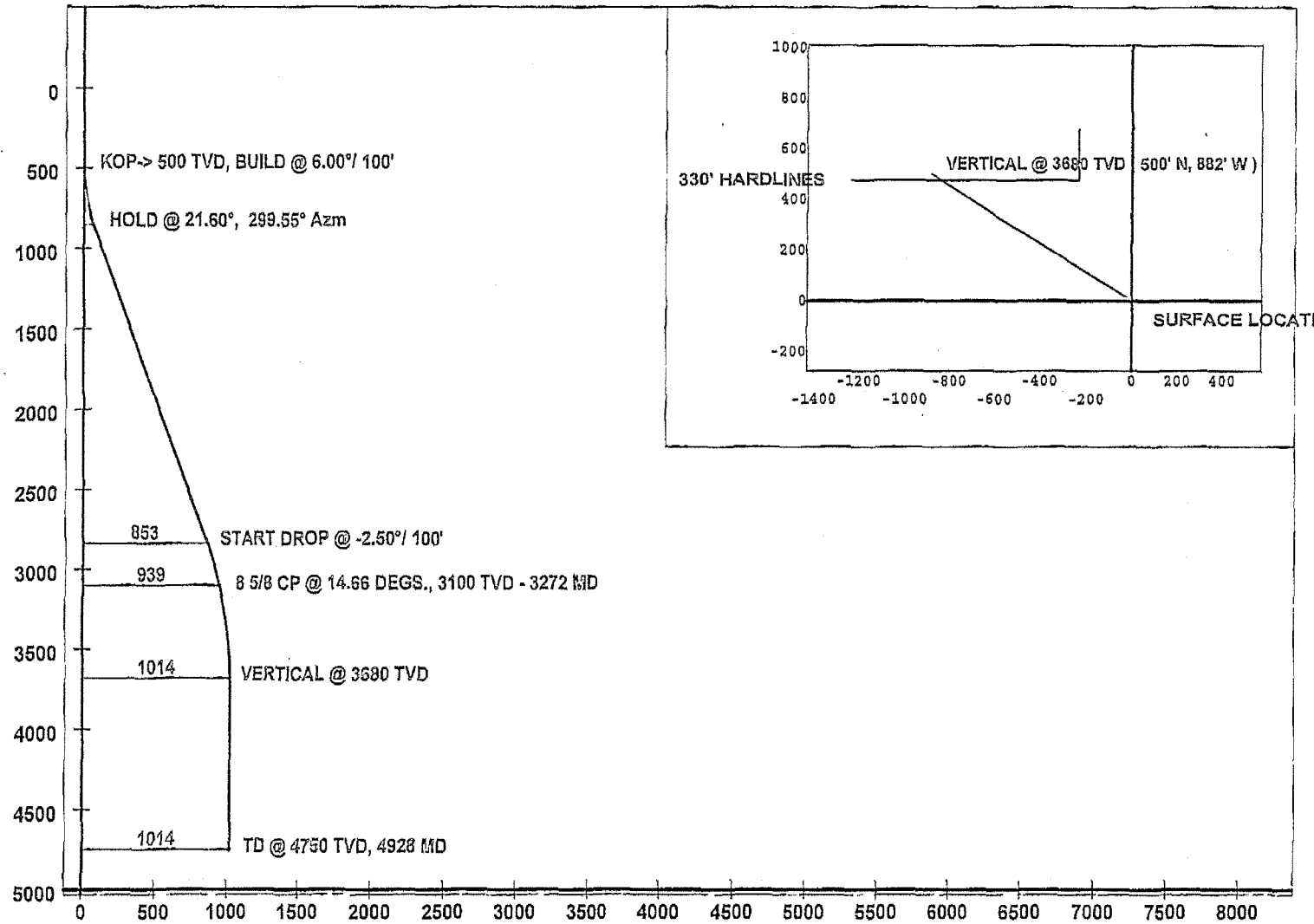
	Measured Depth	True Vertical Depth	Rectangular Coordinates
Upper Perforations			&
Lower Perforation			&

Upper Perforations _____ ft. from the ___ line and _____ ft. from the ___ line of the Sec. and _____ ft. from the _____ line and _____ ft. from the ___ line of the drilling unit.

Lower Perforations _____ ft. from the ___ line and _____ ft. from the ___ line of the Sec. and _____ ft. from the ___ line and _____ ft. from the ___ line of the drilling unit.

Company: WEST BAY EXPLORATION
Lease/Well: HAYSTEAD 1-9
Location: NORVELL TWP., JACKSON CO.
State/Country: MICHIGAN / USA
File name: C:\WINSERVE\PENDING\2010\HAYSTD19.SVY
Date/Time: 06-Apr-10 / 16:12

DDC
Directional Drilling Contractors, LLC.



Directional Drilling Contractors, LLC.

Job Number:	State/Country: MICHIGAN / USA
Company: WEST BAY EXPLORATION	Declination:
Lease/Well: HAYSTEAD 1-9	Grid:
Location: NORVELL TWP., JACKSON CO.	File name: C:\WINSERVE\PENDING\2010\HAYSTD19.SVY
Rig Name:	Date/Time: 06-Apr-10 / 16:16
RKB:	Curve Name: HAYSTEAD 1-9
G.L. or M.S.L.:	

Directional Drilling Contractors
PROPOSAL REPORT

WINSERVE PROPOSAL REPORT
Minimum Curvature Method
Vertical Section Plane 299.55
Vertical Section Referenced to Wellhead
Rectangular Coordinates Referenced to Wellhead

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	N-S FT	E-W FT	Vertical Section FT	CLOSURE Distance FT	CLOSURE Direction Deg	Dogleg Severity Deg/100
KOP-> 500 TVD, BEGIN BUILD @ 6.00°/ 100'									
500.00	.00	.00	500.00	.00	.00	.00	.00	.00	.00
530.00	1.80	299.55	530.00	.23	-.41	.47	.47	299.55	6.00
560.00	3.60	299.55	559.96	.93	-1.64	1.88	1.88	299.55	6.00
590.00	5.40	299.55	589.87	2.09	-3.69	4.24	4.24	299.55	6.00
620.00	7.20	299.55	619.68	3.71	-6.55	7.53	7.53	299.55	6.00
650.00	9.00	299.55	649.38	5.80	-10.23	11.76	11.76	299.55	6.00
680.00	10.80	299.55	678.94	8.34	-14.71	16.91	16.91	299.55	6.00
710.00	12.60	299.55	708.31	11.34	-20.01	23.00	23.00	299.55	6.00
740.00	14.40	299.55	737.48	14.80	-26.10	30.00	30.00	299.55	6.00
770.00	16.20	299.55	766.42	18.70	-32.99	37.92	37.92	299.55	6.00
800.00	18.00	299.55	795.09	23.05	-40.66	46.74	46.74	299.55	6.00
830.00	19.80	299.55	823.47	27.84	-49.11	56.45	56.45	299.55	6.00
860.00	21.60	299.55	851.53	33.07	-58.34	67.06	67.06	299.55	6.00
HOLD @ 21.60°, 299.55° Azm									
860.01	21.60	299.55	851.55	33.07	-58.34	67.06	67.06	299.55	6.00
960.01	21.60	299.55	944.52	51.23	-90.37	103.88	103.88	299.55	.00
1060.01	21.60	299.55	1037.50	69.38	-122.39	140.69	140.69	299.55	.00
1160.01	21.60	299.55	1130.48	87.54	-154.42	177.51	177.51	299.55	.00
1260.01	21.60	299.55	1223.45	105.69	-186.44	214.32	214.32	299.55	.00
1360.01	21.60	299.55	1316.43	123.85	-218.47	251.13	251.13	299.55	.00
1460.01	21.60	299.55	1409.41	142.00	-250.50	287.95	287.95	299.55	.00

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	N-S FT	E-W FT	Vertical Section FT	CLOSURE Distance FT	CLOSURE Direction Deg	Dogleg Severity Deg/100
1560.01	21.60	299.55	1502.39	160.16	-282.52	324.76	324.76	299.55	.00
1660.01	21.60	299.55	1595.36	178.31	-314.55	361.57	361.57	299.55	.00
1760.01	21.60	299.55	1688.34	196.47	-346.57	398.39	398.39	299.55	.00
1860.01	21.60	299.55	1781.32	214.63	-378.60	435.20	435.20	299.55	.00
1960.01	21.60	299.55	1874.29	232.78	-410.62	472.02	472.02	299.55	.00
2060.01	21.60	299.55	1967.27	250.94	-442.65	508.83	508.83	299.55	.00
2160.01	21.60	299.55	2060.25	269.09	-474.68	545.64	545.64	299.55	.00
2260.01	21.60	299.55	2153.23	287.25	-506.70	582.46	582.46	299.55	.00
2360.01	21.60	299.55	2246.20	305.40	-538.73	619.27	619.27	299.55	.00
2460.01	21.60	299.55	2339.18	323.56	-570.75	656.08	656.08	299.55	.00
2560.01	21.60	299.55	2432.16	341.71	-602.78	692.90	692.90	299.55	.00
2660.01	21.60	299.55	2525.13	359.87	-634.80	729.71	729.71	299.55	.00
2760.01	21.60	299.55	2618.11	378.02	-666.83	766.53	766.53	299.55	.00
2860.01	21.60	299.55	2711.09	396.18	-698.86	803.34	803.34	299.55	.00
2960.01	21.60	299.55	2804.07	414.33	-730.88	840.15	840.15	299.55	.00
START DROP @ -2.50°/ 100', 2994 MD									
2994.67	21.60	299.55	2836.29	420.62	-741.98	852.91	852.91	299.55	.00
3024.67	20.85	299.55	2864.25	425.98	-751.43	863.77	863.77	299.55	2.50
3054.67	20.10	299.55	2892.36	431.16	-760.56	874.27	874.27	299.55	2.50
3084.67	19.35	299.55	2920.60	436.15	-769.37	884.39	884.39	299.55	2.50
3114.67	18.60	299.55	2948.97	440.96	-777.85	894.15	894.15	299.55	2.50
3144.67	17.85	299.55	2977.46	445.59	-786.02	903.53	903.53	299.55	2.50
3174.67	17.10	299.55	3006.08	450.03	-793.85	912.54	912.54	299.55	2.50
3204.67	16.35	299.55	3034.81	454.29	-801.36	921.17	921.17	299.55	2.50
3234.67	15.60	299.55	3063.65	458.36	-808.55	929.43	929.43	299.55	2.50
3264.67	14.85	299.55	3092.60	462.25	-815.40	937.31	937.31	299.55	2.50
8 5/8 CP @ 14.66 DEGS., 3100 TVD - 3272 MD									
3272.33	14.66	299.55	3100.00	463.21	-817.10	939.26	939.26	299.55	2.50
3294.67	14.10	299.55	3121.64	465.94	-821.93	944.81	944.81	299.55	2.50
3324.67	13.35	299.55	3150.79	469.45	-828.12	951.93	951.93	299.55	2.50
3354.67	12.60	299.55	3180.02	472.78	-833.98	958.66	958.66	299.55	2.50
3384.67	11.85	299.55	3209.34	475.91	-839.50	965.02	965.02	299.55	2.50
3414.67	11.10	299.55	3238.74	478.85	-844.70	970.99	970.99	299.55	2.50
3444.67	10.35	299.55	3268.21	481.61	-849.55	976.57	976.57	299.55	2.50
3474.67	9.60	299.55	3297.76	484.17	-854.07	981.77	981.77	299.55	2.50
3504.67	8.85	299.55	3327.37	486.54	-858.26	986.58	986.58	299.55	2.50
3534.67	8.10	299.55	3357.04	488.72	-862.11	991.00	991.00	299.55	2.50
3564.67	7.35	299.55	3386.77	490.71	-865.61	995.03	995.03	299.55	2.50
3594.67	6.60	299.55	3416.55	492.51	-868.78	998.67	998.67	299.55	2.50
3624.67	5.85	299.55	3446.37	494.11	-871.61	1001.93	1001.93	299.55	2.50
3654.67	5.10	299.55	3476.24	495.52	-874.10	1004.79	1004.79	299.55	2.50
3684.67	4.35	299.55	3506.13	496.74	-876.25	1007.26	1007.26	299.55	2.50

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	True Vertical Depth	N-S FT	E-W FT	Vertical Section FT	CLOSURE Distance FT	CLOSURE Direction Deg	Dogleg Severity Deg/100
3714.67	3.60	299.55	3536.06	497.77	-878.06	1009.34	1009.34	299.55	2.50
3744.67	2.85	299.55	3566.01	498.60	-879.53	1011.03	1011.03	299.55	2.50
3774.67	2.10	299.55	3595.98	499.24	-880.66	1012.33	1012.33	299.55	2.50
3804.67	1.35	299.55	3625.97	499.69	-881.45	1013.23	1013.23	299.55	2.50
3834.67	.60	299.55	3655.97	499.94	-881.89	1013.74	1013.74	299.55	2.50
VERTICAL @ 3680 TVD									
3858.71	.00	299.55	3680.00	500.00	-882.00	1013.87	1013.87	299.55	2.50
3958.71	.00	299.55	3780.00	500.00	-882.00	1013.87	1013.87	299.55	.00
4058.71	.00	299.55	3880.00	500.00	-882.00	1013.87	1013.87	299.55	.00
4158.71	.00	299.55	3980.00	500.00	-882.00	1013.87	1013.87	299.55	.00
4258.71	.00	299.55	4080.00	500.00	-882.00	1013.87	1013.87	299.55	.00
4358.71	.00	299.55	4180.00	500.00	-882.00	1013.87	1013.87	299.55	.00
4458.71	.00	299.55	4280.00	500.00	-882.00	1013.87	1013.87	299.55	.00
4558.71	.00	299.55	4380.00	500.00	-882.00	1013.87	1013.87	299.55	.00
4658.71	.00	299.55	4480.00	500.00	-882.00	1013.87	1013.87	299.55	.00
4758.71	.00	299.55	4580.00	500.00	-882.00	1013.87	1013.87	299.55	.00
4858.71	.00	299.55	4680.00	500.00	-882.00	1013.87	1013.87	299.55	.00
TD @ 4750 TVD, 4928 MD									
4928.71	.00	299.55	4750.00	500.00	-882.00	1013.87	1013.87	299.55	.00