1	TD @ 26-06-2014	Lithostratigraphic Column	Julien Smeulders	LIR-GT-01		Section TD
Era	**Group**	**Period**	**Formation**	**Epoch (Age)**	**Member**	**Lithology**	***TV-RT Depth (m)***	***AH-RT Depth (m)***	
Cenozoicum	**Upper North Sea** NU	Quaternary	**"Diverse"**	***Holocene-Pleistocene***		**Diverse continental deposits, mostly fluvial sands and silts intercalated by some thin layers of grey or greenish-grey, silty clays.**	7	**7**	24" @ 140m
			Maassluis NUMS	***Early Pleistocene***		**Deposits of coastal sands, very fine to medium coarse, calcareous, shell bearing, mica rich. Silty to sandy, grey to dark grey clay containing shells and mica.**	-	**-**	
		Tertiary	**Oosterhout** NUOT	***Pliocene***		**Deposits of shallow marine greenish clays, sandy clays, silts and coastal sands.**	250	**250**	14 3/8" casing @ 1029m AHD
			Breda NUBA	***Miocene***		**Sequence of marine, glauconitic sands, silty to sandy clays and clayey silts. In many places a glauconite-rich layer occurs at the base.**	387	**387**	
	Middle North Sea NM		**Rupel** NMRF	***Oligocene/Eocene*** *Rupelian to Chattian*	**Rupel Clay** NMRFC	**Marine clays that become more silty towards base and top. It is rich in pyrite, contains hardly any glauconite & CaCO3 tends to be concentrated in the septaria layers.**	432	**432**	
	Lower North Sea NL		**Dongen** NLFF	***Middle to Late Eocene*** *Lutetian to Bartonian*	**Asse** NLFFB	**Marine dark greenish-grey and blue-grey, plastic clays. The unit locally shows indications of bioturbation, and may be glauconitic and micaceous.**	452	**452**	
				Early to Middle Eocene *Ypresian to Lutetian*	**Brussels Sand** NLFFS	**Succession of green-grey, glauconitic, very fine-grained sand.**	486	**486**	
				Early Eocene *Ypresian*	**Ieper** NLFFI	**Soft, tough and sticky to hardened and friable clay.**	505	**505**	
					Basal Dongen Tuffite NLFFT	**Tuffaceous clays, blue to violet-grey in colour, alternating with dark-grey and red-brown clays.**	664	**665**	
			Landen NLLF	***Late Paleocene*** *Thanetian*	**Landen Clay** NLLFC	**Generally dark-green, hard, flaky clay, somewhat silty, containing glauconite, pyrite and mica.**	679	**680**	
	Chalk CK		**Ekofisk** CKEK	***Late Paleocene*** *Danian*		**White, chalky limestones containing rare white and grey nodular and bedded chert layers, and thin, grey to green (glauconitic) clay laminae.**	691	**692**	
Mesozoicum		Cretaceous	**Ommelanden** CKGR	***Upper Cretaceous*** *Turonian to Maastrichtian*		**Succession of white, yellowish-white or light-grey, fine grained, dense limestones, in places argillaceous. Layers of chert nodules are very common over thick intervals. Tongues of sandstone occur.**	708	**709**	
			Texel CKTX	*Cenomanian*	**Plenus Marl** CKTXP	**Dark-grey, partly black, calcareous, laminated claystone.**	1106.5	**1108.5**	
					Texel Marlstone CKTXM	**Interval of white to light grey chalks, chalky marls and limestones. Increasingly marly with depth. Some interbedded layers of medium dark claystone appear at the base.**	1109.5	**1111.5**	
					Texel Greensand CKTXG	**Greenish, glauconitic, calcareous sandstones with intercalated marls.**	1150	**1152**	

2 — Lithostratigraphic Column — LIR-GT-01

07-07-2014 — Julien Smeulders

Era	Group	Period	Formation	Epoch (Age)	Member	Lithology	TV-RT Depth (m)	AH-RT Depth (m)	Section TD
Mesozoicum	Rijnland KN	Cretaceous	*Holland* KNGL	***Lower Cretaceous*** *Late Albian*	Upper Holland Marl KNGLU	Sequence of light to medium grey and white chalks, chalky marls and marls. Increasingly marly with depth.	1162	**1165**	9 5/8" casing @ 2553m AHD
				Late Aptian to Early Albian	Middle Holland Claystone KNGLM	Grey and/or red-brown calcareous shaly claystone with a distinctly lower lime content than the under- and overlying members. Intercation of sandstone beds.	1341	**1347**	
				Early Albian	Holland Greensand KNGLG	Alternation of greenish grey, very glauconitic, very fine- to fine-grained, argillaceous sandstones, locally siltstones with calcareous or sideritic cement, and olive-grey claystones or grey marlstones.	1398	**1406**	
				Early Aptian	Lower Holland Marl KNGLL	Grey and red-brown marl or calcareous, fissile claystone, frequently with intercalated bituminous claystone beds and sandstone beds.	1542	**1563**	
			Vlieland Sandstone KNNS	*Late Barremian to Early Aptian*	De Lier Sandstone KNNSL	Alternation of thin-bedded, very fine- to fine-grained argillaceous sandstones, generally glauconitic and lignitic, and sandy claystones, commonly glauconitic and with shell fragments and frequent bioturbation.	1686	**1736**	
				Late Barremian	Vlieland Clay KNNCM	Dark brownish-grey to grey claystone. Mica and very fine lignitic matter are common. The formation can be very silty to sandy. It's also slightly calcareous.	1765	**1838**	
				Late Hauterivian to Mid Barremian	Berkel Sandstone KNNSB	Sandstone, light-grey, very fine- to coarse-grained, locally gravelly, lignitic, locally glauconitic or with sideritic concretions. Especially in the upper part calcareous cemented beds are common.	1954	**2084**	
				Late Hauterivian to Early Barremian	Berkel Sand/Claystone KNCC	Alternation of fine-grained, argillaceous sandstones and brown-grey silty to sandy claystones. Locally sideritic concretions are present.	2036	**2191.5**	
				Hauterivian	Rijswijk Sandstone KNNSR	Light- to medium-grey sandstones with a very fine to medium and locally gravelly grain size; mica, lignitic matter and siderite concretions are common.	2163	**2357**	
	Schieland SL		Nieuwerkerk SLDN	*Late Valanginian to Early Hauterivian*	Rodenrijs Claystone SLDNR	Medium- to dark-grey and dark brown, silty to sandy lignitic claystones with laminated or contorted bedding, and lignite/coal beds. Traces of mollusc shells, pyrite and siderite.	2261.5	**2486**	6 5/8" casing @ 2881m AHD
				Valanginian	Delft Sandstone SLDND	Light-grey massive sandstone sequence, fine to coarse-gravelly, fining upward, lignitic.	2387	**2651**	
				Lower Cretaceous to Upper Jurassic *Ryazanian to Valanginian*	Alblasserdam SLDNA	The upper part consists of grey to greyish brown, soft claystone with some intercalated red bands and well sorted, very fine loose sand, sandstone & siltstone.	2481.5	**2776**	
					Pijnacker Zandsteen (submember)	Consists of fine to medium grained argillaceous and glauconitic sandstones, massively bedded up to a few metres thick with inter-bedded layers of thin silty claystone.			
		Jurassic				A succession of typically red and dark to light (brownish) grey clay(stones) and variegated clay- and siltstones, sandstones and massive, thick-bedded, coarse grained sandstones. Coal & lignite beds.	2556	**2871**	
						TD	2575.5	**2897**	

Screens: 2610m to 2869m

RT-GL: 6.7m; GL-NAP: 1.9m; NAP-RT: 4.8m