

**Kalkulation DBHD 3.0.3 Endlager nuclear repository GDF**

Last edit: 15. October 2021 / Dipl.-Ing. Volker Goebel CH, DE / Nuclear Repository Planner ww

Capacity : 2.047 HLW Containers / Castors (the complete German HLW in one GDF)**Repository-Storage-Depth : - 8.500 Meters /// water- and air cooled deep shaft building site - 1.500 m**

Based on : Draft-Planning from 2014 - 2021 actually in Version 3.0.3 based on industry offers

download .xlsx file, to be able, to change positions to your country market - your calculation

	Type of invest	Amount	Offer / Quote	Factor	Total	Comment	dwg	
	Probe-Drillings	1 x	by local company	160.500.000 €	160.500.000 €	Cores > -9.000 m	yes	
32.	Land Purchase	min. 363 x 300 m	from local owners	500 € / m2	54.450.000 €	108.900 m2	yes	
	1x DBHD License	Above Earth Install	ing-goebel.shop	5.867.120 €	5.867.120 €	to have a legal plan	yes	
	1x DBHD License	Underground Shaft	ing-goebel.shop	69.000.000 €	69.000.000 €	to have a legal plan	yes	
	Shaft-Boring-RH	SBR with D 12 m	Herrenknecht AG	41.000.000 €	41.000.000 €	2 yrs. delivery time	yes	
	External streets	40 km	make-over	heavy trucks	12.000.000 €	new / enhance		
	DB Rail Connection	1 x	only last kilometers	onto DBHD site	20.000.000 €	if possible		
30.	E-powerconnection	2 x	local supplier	redundant	2.000.000 €	10 kV med. voltage		
31.	Water-connection	2 x	incl. water	redundant	4.000.000 €	10 bar with DN 200		
1.	Concrete Floors	like in techn. plans	concrete and steel	24.265 m3	6.914.250 €	see pictured BOQ	yes	
2.	Concrete Walls	like in techn. plans	concrete and steel	10.050 m3	4.370.250 €	see pictured BOQ	yes	
3.	Gates and Windows	like in techn. plans	big size gates - mid price	16 gates 24 windows	215.040 €	see pictured BOQ	yes	
4.	Concrete Columns	like in techn. plans	concrete and steel	544 m3	337.280 €	see pictured BOQ	yes	
5.	Roofs	like in techn. plans	steel and wood	9.761 m3	10.200.500 €	see pictured BOQ	yes	
6.	Head-Frame Unit	like in techn. plans	steel and glass	79.414 m3	142.945.200 €	see pictured BOQ	yes	
7.	Workshop Storage Hall	like in techn. plans	steel and glass	37.269 m3	40.995.801 €	see pictured BOQ	yes	
8.	Office-Power-Building	like in techn. plans	steel and glass	6.624 m3	8.610.535 €	see pictured BOQ	yes	
9.	Trees	like in techn. plans	h = 5 m / 16 yrs old	Trees 167 x	53.440 €	see pictured BOQ	yes	
10.	Fences & Gates	like in techn. plans	1.364 m in 3 m high	1.148 m 6 m high	614.300 €	see pictured BOQ	yes	
11a.	Water Cooling M.	like in techn. plans	302 m3/h cold water	includes tanks	4.631.966 €	see pictured BOQ	yes	
11b.	Power for Water Cooling	4,5 Mio. kWh / Jahr	über 12 Jahre	54 Mio. kWh	8.100.000 €	0,15 ct / kWh	OK	
12.	Steel Structure W.	like in techn. plans	steel and paint	12.328 m3	1.602.640 €	see pictured BOQ	yes	
13.	Move-able-platforms	like in techn. plans	2 x 200 tons steel	400 tons	600.000 €	see pictured BOQ	yes	
14a.	Air cooling machines	like in techn. plans	4,4 Mio. m3 / hour	2 x 12 MW sets	21.000.000 €	see pictured BOQ	yes	
14b.	Steel Structure A.	like in techn. plans	steel and paint	35.598 m3	4.237.746 €	see pictured BOQ	yes	
14c.	Power for Air Cooling	10 Mio. kWh / Jahr	über 12 Jahre	120 Mio. kWh	18.000.000 €	0,15 ct / kWh	!	
15.	Piping Air Supply	628 m / DN 800	4 Meters deep	air tight, flanges	301.440 €	see pictured BOQ	yes	
16.	Tubing Water Supply	2.512 m / DN 125	2,5 and 3 m deep	water tight, flanges	314.000 €	see pictured BOQ	yes	
17.	Earth wall building	124.000 m3 + Mat.	2 man - 2 years job	diggers on site	306.000 €	see pictured BOQ	yes	
18.	Steel Tubings D12	4.400 Casted Tubings	3.369 kg / Tubbing	16.280 tons	83.764.000 €	see pictured BOQ	yes	
19.	Guide rail beams	like in techn. plans	Steel HEB 240	2.562 tons	3.843.840 €	see pictured BOQ	yes	
20.	Elevator Plattformen	like in techn. plans	includes F & E	16 units	3.680.000 €	see pictured BOQ	yes	
22.	Tubes for Concrete & P.	like in techn. plans	D = 219 x 8 mm	2 x 8.800 m	1.324.000 €	see pictured BOQ	yes	
23.	Install 45 ° Tubes for C.	like in techn. plans	max. 97 m deep	408 m DN 400	520.000 €	see pictured BOQ	yes	
25.	Middle Wall Beams	like in techn. plans	Steel HEA 600	5.651 m	2.169.984 €	see pictured BOQ	yes	
29.	Air Tubes Sheet M.	8.800 m (2,1 m2)	sheet metal, rivets	215 EUR / m	1.892.000 €	see pictured BOQ	yes	
34.	Radlader - Digger	4x L509 Tele Liebherr	4x CAT 313 GC	156.000 m3 and 124.000 m3	720.000 €	see pictured BOQ		
35.	Car Cranes	2x 250 T. Liebherr	LTM 1250-5.1	1.300.000 €	2.600.000 €	see pictured BOQ		
	Conveyor Belts	6 x	sand, salt storage	8 m, 16 m, 30 m	18.000.000 €	diverse types		
	Compensationes	20.000 Shares DE	direct local people	10.000 €	200.000.000 €	payment not bribe		
	Planning Offices	Scientific expertise	many disciplines	all disciplines	40.000.000 €	over 12 years		
	Approval Fees	questions and stamps	many agencies	town, country, state	35.000.000 €	to Gov. Agencies		
	Startfound. SBM	1 x	Drill Company	300.000 €	300.000 €	temp. Structures	yes	
	Shaft Drill D=12 m	1 x	Drill Company	18.300.000 €	18.300.000 €	2.200 m Drill	yes	
	Shaft completion	1 x	Drill Company	7.000.000 €	7.000.000 €	see floorplan	yes	
21.	Watercooling tubes	DN 150 PN 340	Steelbuilders	16.000.000 €	16.000.000 €	16.000 Elements	yes	
	Dyneema Ropes	3 x	Gleistein DE	3.900.000	11.700.000 €	D=80 mm 1.500 m		
	Excavation works	D=104 m / H=29 m	Mining Company	246.226 m3 x 85€	21.000.000 €	bring it to surface	yes	
	Concrete works	D=98 m / H=26 m	Mining Company	196.018 m3 x 210	41.163.780 €	install it at -1.500 m	yes	
	Cranes 250 tons	KTA licensed cranes	KRAFOTEC	14 Cranes,Service	47.000.000 €	with 5 year guarantee	yes	
	Round crane runways	8 diameters	Steel workers	steel, painted blue	13.000.000 €	bring it down, fix it	yes	
	Casted Steel Cones	364 x (D2,8x0,4)	height 6,05 m	364 x 37 = 13.468	21.548.800 €	cast it , bring on site	yes	
	Lead for Castors	2.047 Castors	30 tons lead / each	61.410 tons !!!	184.230.000 €	from old lead accus	yes	
	Absink-Schmelz-Kugeln	54 Stück á 85 tons	Fa. W. Meskendahl	4.590 T. Grauguss	17.281.350 €	Angebot liegt vor	yes	
	Absink-Schmelz-Bullits	158 Stück á 170 tons	Fa. W. Meskendahl	26.860 T Grauguss	107.440.000 €	noch kein Angebot	yes	
	Brems-Besen	52 Stück staubarm	kratzen d. Wand nicht	Bau & Federstahl	780.000 €	noch kein Angebot	yes	
	Heizstäbe für 900 °C	52 x 4 + 156 x 2	Fa. Kanthal & Co.	für Temp. 900 °C	2.600.000 €	noch kein Angebot	yes	
	Tests mit Schmelz-Kugel	Pauschal	Fa. Kali und Salz	in 1 Bergwerk	3.000.000 €	Danke		
	Stromverbrauch Kugel	52 x 4 x 100 kW	20.800 kW x	14.000 Stunden	43.680.000 €	0,15 ct / kWh		
	Stromverbrauch Bullit	156 x 2 x 100 kW	31.200 KW x	3 x 3.500 Stunden	49.140.000 €	0,15 ct / kWh		
	Abstands-Behälter	158 Stk x 12 tons	Stahl-Guss mit Deckel	mit Wärme-Dämm.	9.480.000 €	noch kein Angebot	yes	
	Schwer-Transporte	208 Fahrten	2x 433 km pro Tour	Neuenr. z >> Bev.	900.640 €	noch kein Angebot		
	Elektrische Kabel	52 x 4 x 7.000 m	156 x 2 x 7.000 m	3.640 km	71.800.000 €	noch kein Angebot		
	Kabel-Entroll-Technik	52 Vorrichtungen	Synchron Abrollen	zum Absinken	1.560.000 €	noch kein Angebot	no	
36.	Staff 12 years	50 Man & Woman	4 hour shifts in shaft	120.000 € / year	72.000.000 €	Work & Safety		
	building back	1 x	shaft install out	a guess	11.000.000 €	shaft install out		
	Closure works	1 x	own Salt grain	a guess	500.000 €	Salt + M. Pressure	yes	
	add closure works	1 x	other plugs	a guess	2.500.000 €	Sed. Bitum. Sed.	yes	
	Unforseeables	3%	use or not use	experience	54.347.577 €	it is all calculated		
	Total	October 2021	Version 36		1.865.933.479 €			
	plus HLW containers, plus DB rail-transport, plus law-cases					1,9 Mrd. EUR		