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Calculation 1x DBHD 2.0.0 nuclear repository GDF

3x DBHD

Last edit: 28. April 2021 / Dipl.-Ing. Volker Goebel CH, DE / Nuclear Repository Planner ww

Capacity : 472 HLW Containers / Castor or HI-Star 100, and all country types of containers

Repository-Storage-Depth : - 2.200 Meters / water- and air cooled deep shaft building site

Based on : Draft-Planning from 2014 - 2021 actually in Version **2.0.0 with pictured BOQ**

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

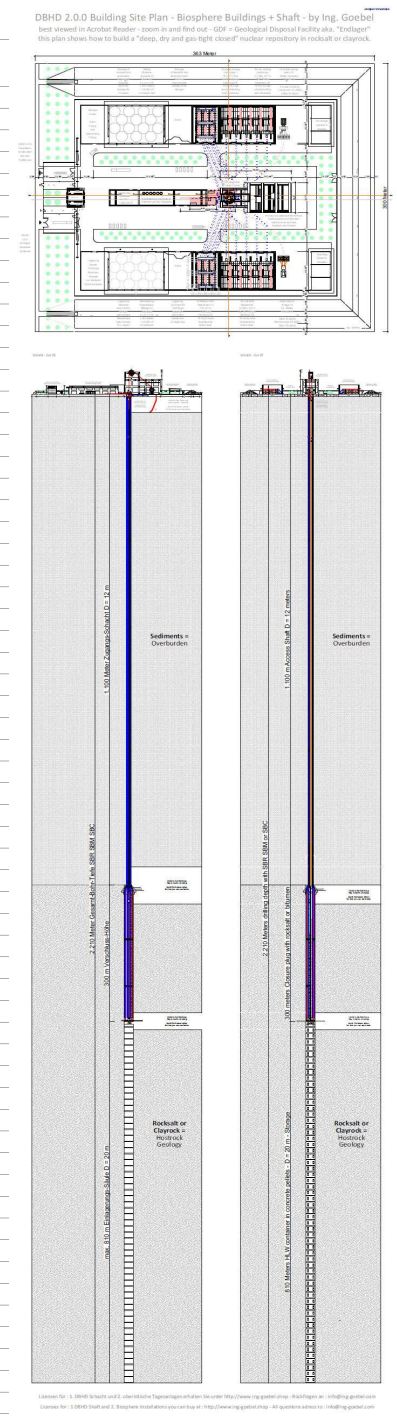
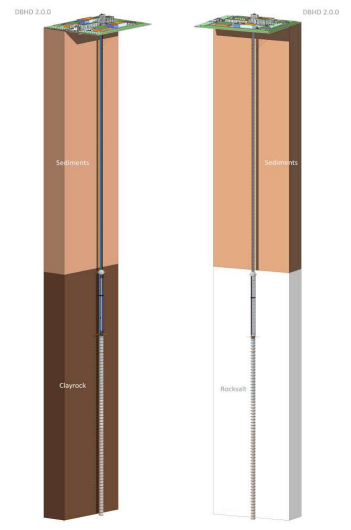
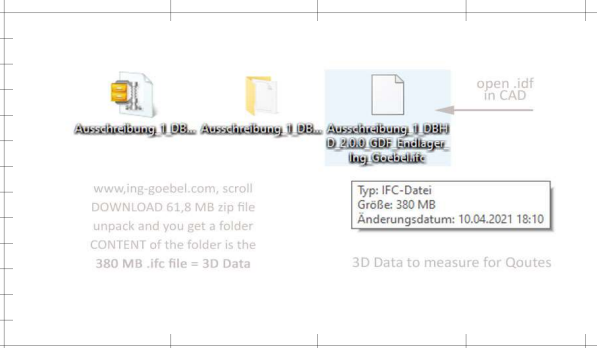
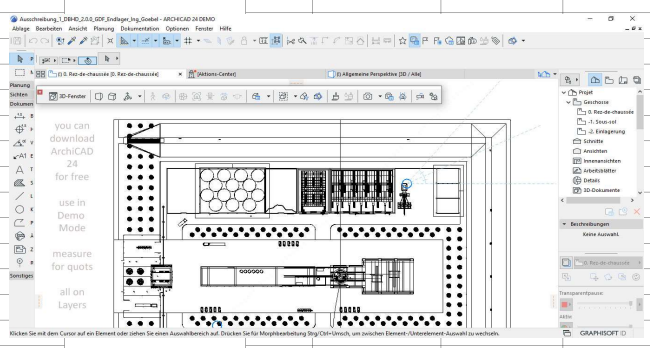
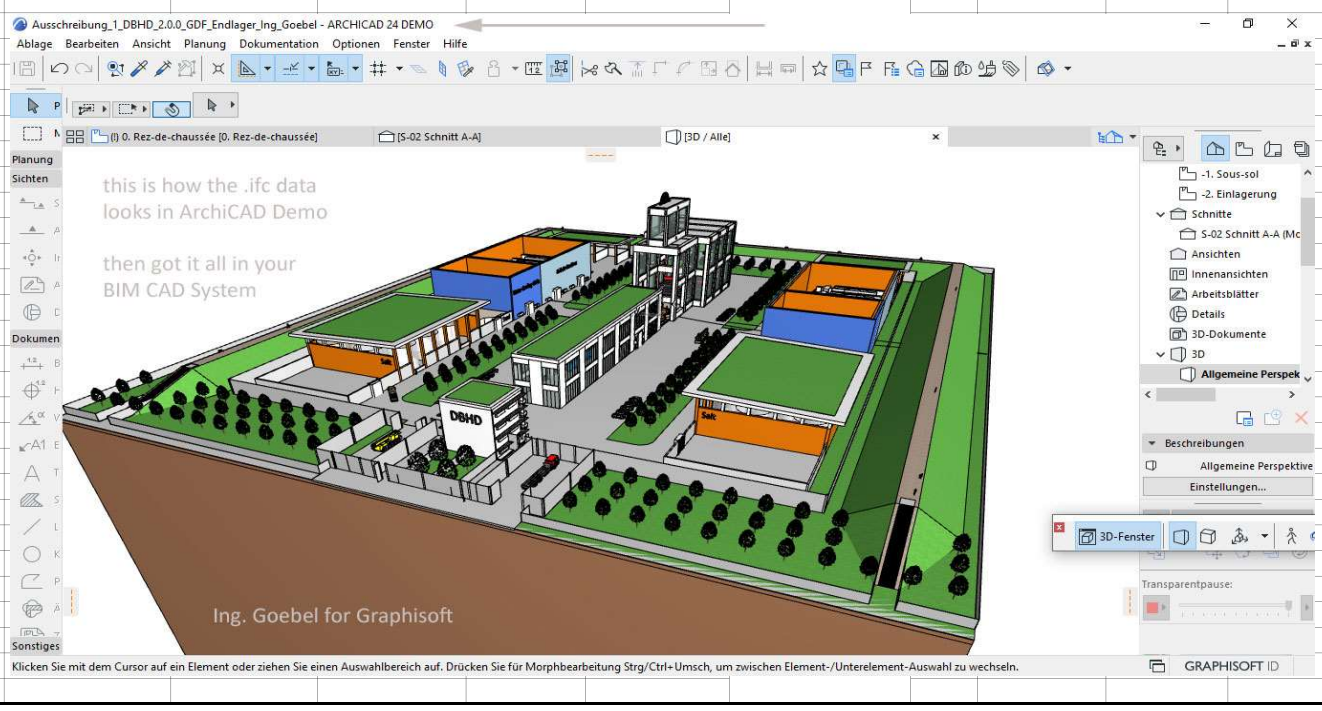
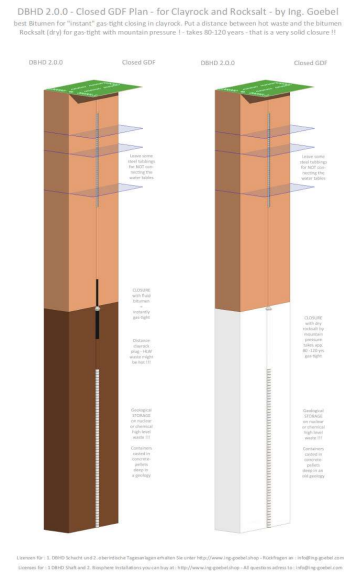
we calculate a net price for 1x DBHD 2.0.0 building site with 1 shaft - but 3 shafts on site are possible

from only 1 building site +100 m +100 m

if local hostrock geology is big enough !?

	Type of invest	Amount	Offer / Quote	Factor	Total	Comment	dwg	1 st. hole	+ 100 m. 2 nd hole	+ 100 m. 3 rd hole
	Probe-Drillings	3 x	by local company	5.500.000 €	22.500.000 €	Cores > -2.500 m	yes	22.500.000 €	5.500.000 €	5.500.000 €
32.	Land Purchase	min. 363 x 300 m	from local owners	120 € / m2	13.068.000 €	108.900 m2	yes	13.068.000 €	3.600.000 €	3.600.000 €
	1x DBHD License	Above Earth Install	ing-goebel.shop	452.000 €	452.000 €	to have a legal plan	yes	452.000 €	100.000 €	100.000 €
	1x DBHD License	Underground Shaft	ing-goebel.shop	590.000 €	590.000 €	to have a legal plan	yes	590.000 €	590.000 €	590.000 €
	Shaft-Boring-RH	SBR with D 12 m	Herrenknecht AG	34.000.000 €	34.000.000 €	2 yrs. delivery time	yes	34.000.000 €	5.000.000 €	5.000.000 €
	External streets	40 km	make-over	heavy trucks	12.000.000 €	new / enhance		12.000.000 €	500.000 €	500.000 €
	DB Rail Connection	1 x	only last kilometers	onto DBHD site	9.000.000 €	**if possible**		9.000.000 €	400.000 €	400.000 €
30.	E-powerconnection	2 x	local supplier	redundant	2.000.000 €	10 kV med. voltage		2.000.000 €	100.000 €	100.000 €
31.	Water-connection	2 x	incl. water	redundant	4.000.000 €	10 bar with DN 200		4.000.000 €	600.000 €	600.000 €
1.	Concrete Floors	like in techn. plans	concrete and steel	24.265 m3	6.914.250 €	see pictured BOQ	yes	6.914.250 €	1.728.563 €	1.728.563 €
2.	Concrete Walls	like in techn. plans	concrete and steel	10.050 m3	4.370.250 €	see pictured BOQ	yes	4.370.250 €	2.185.125 €	2.185.125 €
3.	Gates and Windows	like in techn. plans	big size gates - mid price	16 gates 24 windows	215.040 €	see pictured BOQ	yes	215.040 €	30.000 €	30.000 €
4.	Concrete Columns	like in techn. plans	concrete and steel	544 m3	337.280 €	see pictured BOQ	yes	337.280 €	200.000 €	200.000 €
5.	Roofs	like in techn. plans	steel and wood	9.761 m3	10.200.500 €	see pictured BOQ	yes	10.200.500 €	300.000 €	300.000 €
6.	Head-Frame Unit	like in techn. plans	steel and glass	79.414 m3	142.945.200 €	see pictured BOQ	yes	142.945.200 €	142.945.200 €	142.945.200 €
7.	Workshop Storage Hall	like in techn. plans	steel and glass	37.269 m3	40.995.801 €	see pictured BOQ	yes	40.995.801 €	2.000.000 €	2.000.000 €
8.	Office-Power-Building	like in techn. plans	steel and glass	6.624 m3	8.610.535 €	see pictured BOQ	yes	8.610.535 €	0 €	0 €
9.	Trees	like in techn. plans	h = 5 m / 16 yrs old	Trees 167 x	53.440 €	see pictured BOQ	yes	53.440 €	15.000 €	15.000 €
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	614.300 €	63.000 €	63.000 €
11a.	Water Cooling M.	like in techn. plans	302 m3/h cold water	includes tanks	4.631.966 €	see pictured BOQ	yes	4.631.966 €	1.543.988 €	1.543.988 €
11b.	Power for Water Cooling	4,5 Mio. kWh / Jahr	über 12 Jahre	54 Mio. KWh	8.100.000 €	0,15 ct / kWh	OK	8.100.000 €	8.100.000 €	8.100.000 €
12.	Steel Structure W.	like in techn. plans	steel and paint	12.328 m3	1.602.640 €	see pictured BOQ	yes	1.602.640 €	1.602.640 €	1.602.640 €
13.	Move-able-platforms	like in techn. plans	2 x 200 tons steel	400 tons	600.000 €	see pictured BOQ	yes	600.000 €	600.000 €	600.000 €
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	21.000.000 €	7.000.000 €	7.000.000 €
14b.	Steel Structure A.	like in techn. plans	steel and paint	35.598 m3	4.237.746 €	see pictured BOQ	yes	4.237.746 €	4.237.746 €	4.237.746 €
14c.	Power for Air Cooling	10 Mio. kWh / Jahr	über 12 Jahre	120 Mio. KWh	18.000.000 €	0,15 ct / kWh	!	18.000.000 €	18.000.000 €	18.000.000 €
15.	Piping Air Supply	628 m / DN 800	4 Meters deep	air tight, flanges	301.440 €	see pictured BOQ	yes	301.440 €	301.440 €	301.440 €
16.	Tubing Water Supply	2.512 m / DN 125	2,5 and 3 m deep	water tight, flanges	314.000 €	see pictured BOQ	yes	314.000 €	314.000 €	314.000 €
17.	Earth wall building	124.000 m3 + Mat.	2 man - 2 years job	diggers on site	306.000 €	see pictured BOQ	yes	306.000 €	306.000 €	306.000 €
18.	Steel Tubbings D12	4.400 Casted Tubbings	3.369 kg / Tubbing	16.280 tons	83.764.000 €	see pictured BOQ	yes	83.764.000 €	3.000.000 €	3.000.000 €
19.	Guide rail beams	like in techn. plans	Steel HEB 240	2.562 tons	3.843.840 €	see pictured BOQ	yes	3.843.840 €	3.843.840 €	3.843.840 €
20.	Elevator Plattforms	like in techn. plans	**includes F & E**	16 units	3.680.000 €	see pictured BOQ	yes	3.680.000 €	3.680.000 €	3.680.000 €
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	1.324.000 €	1.324.000 €	1.324.000 €
23.	Install 45 ° Tubes for C.	like in techn. plans	max. 97 m deep	408 m DN 400	520.000 €	see pictured BOQ	yes	520.000 €	520.000 €	520.000 €
24.	Cone & Flange	like in techn. plans	concrete and steel	1.859 m3	942.900 €	see pictured BOQ	yes	942.900 €	942.900 €	942.900 €
25.	Middle Wall Beams	like in techn. plans	Steel HEA 600	5.651 m	2.169.984 €	see pictured BOQ	yes	2.169.984 €	180.832 €	180.832 €
26.	Pouring Plattform	like in techn. plans	Steel HEA 1000	2x 160 t	1.600.000 €	see pictured BOQ	yes	1.600.000 €	0 €	0 €
28.	Steel Tubbings D20	6.600 Casted Tubbings	4.717 kg / Tubbing	31.132 tons	156.156.000 €	see pictured BOQ	yes	156.156.000 €	300.000 €	300.000 €
29.	Air Tubes Sheet M.	8.800 m (2,1 m2)	sheet metal, rivets	215 EUR / m	1.892.000 €	see pictured BOQ	yes	1.892.000 €	1.892.000 €	1.892.000 €
33.	Trucks - Kipper / 20x	MB Actros 3345 AK	33 T. Kipper Strasse	577.760 tons Salt	3.040.000 €	251.200 x 2,3 = tons		3.040.000 €	2.000.000 €	2.000.000 €
	Salz-Verkauf	17.508 tours 300 km	**that is rail transport !**	Fuel for Trucks	2.605.172 €	2.100.945 L. Diesel		2.605.172 €	2.605.172 €	2.605.172 €
34.	Radlader - Digger	4x L509 Tele Liebherr	4x CAT 313 GC	156.000 m3 and 124.000 m3	720.000 €	see pictured BOQ		720.000 €	200.000 €	200.000 €
35.	Car Cranes	2x 250 T. Liebherr	LTM 1250-5.1	1.300.000 €	2.600.000 €	see pictured BOQ		2.600.000 €	0 €	1.300.000 €
	Conveyor Belts	6 x	sand, salt storage	8 m, 16 m, 30 m	18.000.000 €	diverse types		18.000.000 €	3.000.000 €	3.000.000 €
	Compensationes	20.000 Shares DE	direct local people	10.000 €	200.000.000 €	payment not bribe		200.000.000 €	100.000.000 €	100.000.000 €
	Planning Offices	Scientific expertise	many disciplines	all disciplines	60.000.000 €	over 12 years		60.000.000 €	15.000.000 €	15.000.000 €
	Approval Fees	questions and stamps	many agencies	town, country, state	35.000.000 €	to Gov. Agencies		35.000.000 €	6.000.000 €	6.000.000 €
	Startfound. SBM	1 x	Drill Company	300.000 €	300.000 €	temp. Structures	yes	300.000 €	300.000 €	300.000 €
	Shaft Drill D=12 m	1 x	Drill Company	18.300.000 €	18.300.000 €	2.200 m Drill	yes	18.300.000 €	18.300.000 €	18.300.000 €
	Shaft completition	1 x	Drill Company	7.000.000 €	7.000.000 €	see floorplan	yes	7.000.000 €	7.000.000 €	7.000.000 €
21.	Watercooling tubes	2 Sets **DN 125** PN 340	Steelbuilders	8.000.000 €	16.000.000 €	16.000 Elements	yes	16.000.000 €	1.600.000 €	1.600.000 €
	Dyneema Ropes	3 x	Gleistein DE	3.900.000	11.700.000 €	D=80 mm 2.250 m		11.700.000 €	11.700.000 €	11.700.000 €
	Hole-opening	1 x	to Diam. = 20 m.	10.000.000 €	10.000.000 €	with chain-saws	yes	10.000.000 €	10.000.000 €	10.000.000 €
36.	Staff 12 years	50 Man & Woman	4 hour shifts in shaft	120.000 € / year	72.000.000 €	Work & Safety		72.000.000 €	80.000.000 €	90.000.000 €
	Rocksalt-Salt-Sale	1 x 251.200 m3	rough quality Streusalz	250 €/m3	-62.800.000 €	Städte / und BGE		-62.800.000 €	-62.800.000 €	-62.800.000 €
27.	Concrete-Pellets	59 Pellets	2.590 m3 x 59	70 €/m3	12.183.500 €	Quality-Concrete	yes	12.183.500 €	12.183.500 €	12.183.500 €
	Sand/fine gravel	60 Layers t = 1,5 m	471 m3 x 60	50 €/m3	1.413.000 €	D = max. 3 mm	yes	1.413.000 €	1.413.000 €	1.413.000 €
	Magnetit powder	59 Portions	70 m3 x 59	680 €/m3	2.808.400 €	Rio Tinto, Billiton	yes	2.808.400 €	2.808.400 €	2.808.400 €
	building back	1 x	shaft install out	a guess	11.000.000 €	shaft install out		11.000.000 €	2.000.000 €	2.000.000 €
	Closure works	1 x	own Salt grain	a guess	500.000 €	Salt + M. Pressure	yes	500.000 €	500.000 €	500.000 €
	add closure works	1 x	other plugs	a guess	2.500.000 €	Sed. Bitum. Sed.	yes	2.500.000 €	2.500.000 €	2.500.000 €
	Unforseeables	3%	use or not use	experience	31.581.696 €	it is all calculated		31.581.696 €	31.581.696 €	31.581.696 €
	Total	**April 2021**	**Version 30**		**1.084.304.880 €**			**1.084.304.880 €**	**471.438.041 €**	**482.738.041 €**

plus HLW containers, plus rail-transports, plus law-cases — **1,1 Mrd. EUR**

1 st. hole	2 nd hole	3 rd hole
1,1 Mrd. EUR	0,48 Mrd. EUR	0,49 Mrd. EUR

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