

POWERTECH (USA), INC.  
 EXNI-409 BOND CALCULATION SUMMARY

Plug Artesian Holes with Cement	\$22,139
Plug Confined Aquifers with Bentonite Slurry	\$23,278
Reclamation	\$10,325
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Total for Reclamation	\$55,742
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Mobilization (5%)	\$2,787
Performance Bond (1%)	\$557
Contractor Overhead (8%)	\$4,459
State Excise Tax (2%)	\$1,115
Contractor Profit (10%)	\$5,574
Contingency (10%)	\$5,574
Insp., Adm., & Maint. (5%)	\$2,787
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Total	\$78,595
<b>ROUND TO:</b>	<b>\$78,600</b>

CONSTRUCTION COST INDEX (CCI) FOR OCTOBER 2008 = 8623.22

FORMULA FOR COMPUTING FUTURE CONSTRUCTION COST:

$$\text{FUTURE COSTS} = (\text{FUTURE CCI} / \text{ORIGINAL CCI}) * \text{ORIGINAL CONSTRUCTION COSTS}$$

CURRENT CCI	8623.22
ORIGINAL CCI	8623.22
ORIG. CONSTRUCTION COST	\$78,600
FUTURE COST	\$78,600

**POWERTECH (USA) INCORPORATED**  
**URANIUM EXPLORATION PERMIT BOND CALCULATION**  
**GENERAL INFORMATION & ASSUMPTIONS**

1. The bond calculation covers the entire affected area. A total of 6 acres was used in the calculation for reclamation of exploration holes, mud pits and associated disturbance (0.2 acre/hole x 30 holes).
2. The calculations are based on the actual cost that would accrue to the state if it had to hire a third-party contractor to conduct reclamation at the site.
3. In accordance with SDCL 45-6D-19, the bond calculation covers the costs of reclaiming all 30 drill holes, along with the mud pits for each hole and other associated disturbance.
4. Eight exploration holes will have flowing artesian conditions and will need to be plugged with cement grout as required in ARSD 74:11:08:07. The assumed surface flow at each hole is 2 to 10 gallons per minute. The remaining 22 exploration holes will be confined aquifers and will be plugged with high quality bentonite grout and chipped bentonite.
5. The length of each hole that will be plugged with cement grout is 597 feet, with the upper three feet filled with drill cutting for a total hole depth of 600 feet. The length of each hole that will be plugged with bentonite grout is 592 feet, with chipped bentonite being placed in the remaining eight feet of each hole for a total hole depth of 600 feet. The diameter of each exploration hole is 6.25 inches. The total volume of each artesian hole to be plugged is 127 cubic feet. It will take a drill rig and crew 3 hours to trip in and out and plug each hole with cement or bentonite grout. It will take a two person crew ½ hour to top off each bentonite grouted hole with chipped bentonite.
6. Each mud pit is 12' x 12' x 12' for a volume of 1,728 cubic feet. For 30 exploration holes, the total volume that will need to be backfilled is 1,920 cubic yards.
7. The following equipment and equipment costs were used in the calculation:

Cat D6R dozer	\$70.00/hr.
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These rates were obtained from Butler Machinery in Rapid City and do not include fuel or operator costs. Operator costs are \$26.50/hr., including benefits. Fuel costs of \$4.50/gal. are accounted for separately.

A Cat D-9 Dozer will be used to push backfill material into the mud pits and the pump test ponds. The dozer will also be used to push topsoil onto the backfilled areas. A cost of \$228 was calculated to move the dozer between drilling areas.

8. All equipment will run at 80 percent efficiency. This is obtained from the Cat Handbook and other bond calculation references.

9. The following indirect costs were added to the direct cost:

Mobilization	5%
Performance Bond	1%
Contractor Overhead	8%
State Excise Tax	2%
Contractor Profit	10%
Contingency	10%
Administration	<u>5%</u>
Total	41%

10. Seeding costs of \$500/acre and mulching costs of \$400/acre were used in this calculation. These costs were obtained from other bond calculations.
11. The seed types and rates included in the approved reclamation plan were used. Seed costs were determined by averaging seed costs from three vendors.
12. An erosion control cost of \$1,000 was assumed for the drill sites.

### Powertech EXNI-409 Bond Calculation

#### PLUGGING FLOWING ARTESIAN HOLES (ARSD 74:11:08:07)

Cost for Drill Rig/Labor (\$/hr): \$260

Cost for Cement (per sack): \$20

\* Note: 1.28 ft<sup>3</sup> of cement per sack.

Diameter of Hole (inches): 6.25      Radius -r (in): 3.13

Vertical Depth of Exploration Hole (ft): 600

Length of Hole to be Plugged with Cement (ft): 597

\* Note: Cemented length set forth in 74:11:08:04.

$$\text{Volume (ft}^3\text{)} = \pi r(\text{in})^2 \cdot (1 \text{ft}^2 / 144 \text{in}^2) \cdot L(\text{ft})$$

Volume of Hole to be Plugged with Cement (ft<sup>3</sup>): 127

Cost of Cement for Hole: \$1,987

Estimated Time for Drill Rig/Labor (hours): 3.0

**Plugging Cost for One Hole: \$2,767**

**Plugging Cost for 8 Holes: \$22,139**

## Powertech EXNI-409 Bond Calculation

### PLUGGING AND SEALING CONFINED AQUIFERS (ARSD 74:11:08:05)

Cost for Drill Rig/Labor (\$/hr):	\$260
Cost for 2 People to Apply Chipped Bentonite (\$/hr):	\$20
Cost for High Quality Sodium Bentonite Grout(per sack):	\$9.30

\* Note: 6.31 ft<sup>3</sup> yield per 50 lb sack of sodium bentonite grout is a project-wide average

Cost for Chipped Bentonite (per 50 lb sack)	\$4.11		
Diameter of Hole (inches):	6.25	Radius -r (in):	3.13
Vertical Depth of Exploration Hole (ft):	600		
Length of Hole to be Plugged with Bentonite Grout (ft):	592		
Length of Hole to be Plugged with Chipped Bentonite (ft):	8		

$$Volume (ft^3) = \pi r(in)^2 \cdot (1ft^2 / 144in^2) \cdot L(ft)$$

Volume of Hole to be Plugged with Bentonite Grout (ft <sup>3</sup> ):	126
Number of Sacks Chipped Bentonite Per Hole:	20
Cost of Quick Grout for Hole:	\$186
Cost of Chipped Bentonite for Hole	\$82
Estimated Time for Drill Rig/Labor (hours):	3.0
Estimated Time for Chipped Bentonite Crew (hours):	0.5
<b>Plugging Cost for One Hole:</b>	<b>\$1,058</b>
<b>Plugging Cost for 22 Holes:</b>	<b>\$23,278</b>

Powertech Drill Hole and Mud Pit Reclamation

MATERIAL MOVING WITH DOZER (backfill mud pits)

Dozer Type:	Cat D6R	
Blade Type:	Straight	
Avg. Doze Dist. (ft.):		50
Vol. of Mat. (cy):		1920 (estimation)
Cost for Dozer (\$/hr):		\$70.00
Cost for Oper. (\$/hr):		\$26.50
Is mat. being moved to reduce slopes of heap, dump or other stockpile? Enter 1 if yes, 2 if no:		2
Production =		270 cy/hr
Total Time @ 80% Eff. =		8.9 hrs
Cost =		\$859

GRADING WITH DOZER (SLOPES)

Dozer Type:	Cat D6R	
Blade Type:	Straight	
Avg. Doze Dist. (ft.):		50
Acreage (acres):		6
Mat. Thickness (ft.):		0.5
Cost for Dozer (\$/hr):		\$70.00
Cost for Oper. (\$/hr):		\$26.50
Production =		450 cy/hr
Total Time @ 80% Eff. =		13.4 hrs
Cost =		\$1,293

SEED COSTS (MIXTURE #1)

SEED TYPE

APPL.

RATE

COST

Western Wheatgrass

6.20 lbs/acre

\$4.50 /lb

Green Needlegrass

3.00 lbs/acre

\$3.00 /lb

Blue Grama

0.60 lbs/acre

\$10.00 /lb

Sideoats Grama

1.80 lbs/acre

\$12.00 /lb

Acreage (acres):

6 acres

Cost =

\$387

SEEDING COSTS

Acreage (acres):	6
Cost (\$/acre):	500
Total Cost =	\$3,000

HYDROMULCH (WOOD FIBER)

Acreage (acres):	6
Cost (\$/ton):	400
Total Cost =	\$2,400

FERTILIZER

N Appl. Rate (lbs/acre):	120
P Appl. Rate (lbs/acre):	104
K Appl. Rate (lbs/acre):	0
N Cost (\$/lb):	\$0.35
P Cost (\$/lb):	\$0.47
K Cost (\$/lb):	\$0.24
Acreage (acres):	6
Total Cost =	\$545

MOVING DOZER BETWEEN DRILL AREAS

Cost for Dozer (\$/hr)	\$70.00
Total Time to Move Dozer	3.25 hours
Total Cost =	\$228

FUEL COSTS

Cost of fuel (\$/gal): EQUIPMENT	HOURS	\$4.50 /gal	CONSUMP.
Cat D6R Dozer	22.3		6.0 gal/hr
Cat 637E Scraper	0.0		11.5 gal/hr
Cat 16G Grader	0.0		9.0 gal/hr
Cat 988 Loader	0.0		16 gal/hr
Cat 992 Loader	0.0		21.5 gal/hr
Cat 777 Truck	0.0		19.5 gal/hr
Cat 773 Truck	0.0		14.5 gal/hr
Total Cost =		\$602	

MISC. COSTS

Erosion Control \$1,000

TOTAL COST = \$10,314