COLORADO
Division of Reclamation, Mining and Safety
Department of Natural Resources

Memo

Date: December 27, 2024
To: Chris Girardi
From: Amy Yeldell
Cc: Travis Marshall, Jared Ebert
RE: Bonding Review of NOI Application Passiflora (P-2024-011)

Hi Chris

I have reviewed your bond calc based on the information provided in your request received December 23, 2024. In general, the Division has to bond for the most conservative measures necessary to ensure there is no commingling of aquifers to preserve groundwater quality and quantity. The Permanent Abandonment of Prospecting Drill Holes is addressed under Rule 5.4.2.

The Applicant has proposed to drill one core hole with a maximum width of 4.5" and depth of up to 5000 feet deep. Based on the information provided and the Division's common practices is that a 6" diameter hole should be used since we round up and the maximum proposed hole size is 4.5". Of the 5000LF well, it is proposed that the bottom 4960 LF is bentonite and the top 20 LF is cement. Assuming that no artesian flows are encountered this is acceptable. Deep wells cannot be top poured without risking bridging. Given that this well is 5000 LF it needs to be plugged using either a Trimmie Pipe or Coil Tubing unit. This is a specialized piece of equipment which has additional cost.

Regarding the per unit costs and sources of cost, the Division estimates are standardized using our CIRCES program. The cost for plugging a well is a combination of costs sourced from RS Means, EquipmentWatch, and Wages.gov. Rather than itemizing costs the system generates a cost by linear foot based on the hole diameter size. The costs include material (bentonite or Portland cement), a drill rig (Trimmie Unit), water Truck, cutting casing, a borehole marker and labor. The hours needed for equipment and labor is based on the assumption of 10 LF per hour of production. The Division has summarized these input costs in the attached spreadsheet tables.

Specifically, when comparing the Division's cost to the BLM there are differences. In general, the per unit cost utilized by the BLM are less than the Division and thus the overall abandonment cost is significantly less. Per the MOU the Division is the lead bonding authority. The bond shall be shared by both agencies, and it shall meet the requirements/needs of both agencies. The BLM may require a lower

bond amount. However if the Division's bond amount is high, that shall be the amount held in the joint bond.

In reviewing the rest of the bonding tasks, under mobilization the drill rig mobilized should be a SCHRAMM T45WS since this is what the per unit plugging is based on. Similarly, a 5,000 gal water truck should be used rather than 3,500 gal. A minimum of a 3/4T laborer crew truck should also be mobilized. Given the size of this operation the laborer would also likely be the foreman/job superintendent. Lastly a secondary mobilization task for the revegetation failure should be added. This should include the broadcast seeder and crew truck. All other tasks look accurate based on the scope of the project. With regards to indirect cost the job superintendent hours could be reduced since they would likely be the same person performing the work as mentioned above. The Financial Warranty Fee shall be set at $500 since at this time the bond type is unknown. For Engineering work and/or contract/bid prep since this is a minerals site standard practices are 4.25% of contract amount. Contingency may also be applied depending on if additional risks or uncertainties are anticipated.

In general drilling and plugging of wells can have may unknowns even in a well-studied formation. These unknowns can result large unforeseen costs. It is for that reason that the Divisions estimates need to be conservative based on the worst-case scenario presented in the application. I would urge you to use caution and have a well-documented reason for using something other than the most conservative estimate.

Sincerely,

Amy Yeldell
EPS III - Bonding

Description	UnitOf	UnitCost	Source
Portland cement grout (Bag, material cost only...94 lb. bag)	bag	22	RSMeans 03 05 13.30; 0250
Granular bentonite (Bag, material cost only...50 lb. bag)	bag	44.5	RSMeans 07 17 13.10; 0300
Polyurethane foam (CF, material cost only)	CF	14.7	IMP- Avg 2023
Borehole location/identification marker (EA, material cost only)	EA	46	RS Means 02 21 1313; 0600
			*Used Zone A General/Commor
General laborer -Colorado (total incl. fringes, empl. burden)	HR	23.44	Laborer Cost
			*Back of RSMeans Book, Common
General laborer -Other States (total incl. fringes, empl. burden)	HR	49	Building Laborers Hourly

Description	UnitOf	UnitCost	Source
PVC plug - 2 in. diameter borehole	EA	26.09366	Indexed 2023 Costs 2% inflation
PVC plug - 4 in. diameter borehole	EA	36.06161	Indexed 2023 Costs 2% inflation
PVC plug - 6 in. diameter borehole	EA	65.19112	Indexed 2023 Costs 2% inflation
PVC plug - 8 in. diameter borehole	EA	89.30594	Indexed 2023 Costs 2% inflation
PVC plug - 10 in. diameter borehole	EA	122.344	Indexed 2023 Costs 2% inflation
PVC plug - 12 in. diameter borehole	EA	167.6238	Indexed 2023 Costs 2% inflation
Stainless steel plug - 2 in. diameter borehole	EA	67.82138	Indexed 2023 Costs 2% inflation
Stainless steel plug - 4 in. diameter borehole	EA	93.74297	Indexed 2023 Costs 2% inflation
Stainless steel plug - 6 in. diameter borehole	EA	169.492	Indexed 2023 Costs 2% inflation
Stainless steel plug - 8 in. diameter borehole	EA	232.1758	Indexed 2023 Costs 2% inflation
Stainless steel plug - 10 in. diameter borehole	EA	318.1017	Indexed 2023 Costs 2% inflation
Stainless steel plug - 12 in. diameter borehole	EA	435.7874	Indexed 2023 Costs 2% inflation

Description	UnitOf	UnitCost	Source
Bentonite seal - 2 in. (labor, equip, materials)	LF	8.796	Equipment Watch and RS Means
Bentonite seal - 4 in. (labor, equip, materials)	LF	9.6082	Equipment Watch and RS Means
Bentonite seal - 6 in. (labor, equip, materials)	LF	11.2524	Equipment Watch and RS Means
Bentonite seal - 8 in. (labor, equip, materials)	LF	13.2927	Equipment Watch and RS Means
Bentonite seal - 10 in. (labor, equip, materials)	LF	16.3105	Equipment Watch and RS Means
Bentonite seal - 12 in. (labor, equip, materials)	LF	19.8932	Equipment Watch and RS Means

Description	UnitOf	UnitCost	Source
Portland cement grout - 2 in. (labor, equip, materials)	LF	8.571	Equipment Watch and RS Means
Portland cement grout - 4 in. (labor, equip, materials)	LF	8.7132	Equipment Watch and RS Means
Portland cement grout - 6 in. (labor, equip, materials)	LF	9.6824	Equipment Watch and RS Means
Portland cement grout - 8 in. (labor, equip, materials)	LF	10.6027	Equipment Watch and RS Means
Portland cement grout - 10 in. (labor, equip, materials)	LF	12.0505	Equipment Watch and RS Means
Portland cement grout - 12 in. (libor, equip, materias)	LF	13.6182	Equipment Watch and RS Means

Hole Diam:	4.5"	*have to round up to 6"
Length:	5000 Ft	
Method:	Trimme Entire Interval	

	Unit	Rate	Qnt	Total
Bentonite seal - 6 in. (labor, equip, materials)	LF	$ 11.25	4980.00	$ 56,036.95
Portland cement grout - 6 in. (labor, equip, materials)	LF	$ 9.68	20.00	$ 193.65
				$ 56,230.60

Itemized					
Equipment:	Drill Rig	SCHRAMM T45WS	EA/Hr	$ 595.00	*Prev Yrs Cost Equipment Watch
	Water Truck	5000 Gal	EA/Hr	$ 140.83	*Prev Yrs Cost Equipment Watch
Materials	Casing	Exposed Casing Removal	LF	$ 5.07	RSMeans 05 05 21.10; 0200
	Marker	PVC Plug 6in	EA	$ 65.19	Indexed 2023 Costs 2% inflation
	Cement	94lb bag	EA	$ 22.00	RSMeans 03 05 13.30; 0250
	Bentonite	50 lb bags	EA	$ 44.50	RSMeans 07 17 13.10; 0300