100300

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ARIZONA DEPARTMENT
ENVIRONMENTAL QUALITY
JAN 10 2012
WATER QUALITY
COMPLIANCE SECTION

Arizona Department of Environmental Quality
Water Quality Compliance Section
Mail Code: 5415B-1
1110 W. Washington Street
Phoenix, Arizona 85007
Phone (602) 771-4497

INSPECTOR REC'D
4/2/2012

Re: Pinenut Mine Non-Stormwater Impoundment 3.04 General Aquifer Protection Permit (APP) No. P-100300 Annual Water Quality Report

Dear Mr. Vakili:

Denison began discharging to the Pinenut Mine Non-Stormwater Impoundment on January 3, 2011 in accordance with Pinenut Mine Non-Stormwater Impoundment 3.04 General Aquifer Protection Permit (APP) No. P-100300. In addition to the requirements of the 3.04 General Permit in Arizona Administrative Code (A.A.C.) R18-9-D304, Denison agreed to the following voluntary condition:

> "2. **Mine Shaft Sump Monitoring**
>
> i. Denison agrees to measure the daily volume of water pumped from the underground mining areas, and conduct periodic sampling for the water pumped from the underground mining areas as follows:
>
> > Denison will sample water pumped from the underground mining areas at the point the water discharges to the non-stormwater impoundment on a quarterly basis for the parameters set forth in Table 1 of the permit. If there is no water pumped during a particular quarter, then no sample will be required. Denison will report to ADEQ the results of the daily volume of water pumped and quarterly sampling within 30 days of the end of each of the first two quarters of operation, and on an annual basis thereafter.
>
> ii. If the sampling results suggest that aquifer water quality standards could be exceeded in groundwater beneath the mine given the depth to groundwater at the mine, Denison will increase the frequency of pumping to mitigate any risk to groundwater."

In accordance with this permit condition; Denison provided quarterly reports on April 29th and July 29th, 2011 for the first and second quarters of 2012. Denison is now providing the daily volume of water pumped the results of analytical water quality samples taken on August 17 and November 29, 2011 for the remainder of the

year. In accordance with the permit condition, this information is being provided prior to January 30, 2012 for the third and fourth quarter 2011.

Denison received the air permit for the Pinenut Mine on March 9, 2011 and began rehabilitating the mine shaft during the second quarter of 2011. Shaft rehabilitation is required for worker health and safety reasons and it is likely that the sumps in the lower levels of the mine will not be reached until the second or third quarter of 2012 or as the rehabilitation schedule dictates. At the time the sump levels are reached, Denison will be able to survey and perform Klinkenberg testing on the mine sumps in accordance with voluntary permit condition number 1.

Please let me know if you have any questions or comments regarding the enclosed information. I can be reached at 303.389.4136 or cwoodward@denisonmines.com.

Yours very truly,

DENISON MINES (USA) CORP.

Christy Woodward, PE
Environmental Coordinator

Cc: Denison Mines (USA) Corp, File
David C. Frydenlund, Terry Wetz, Philip Buck, John Stubblefield, Denison Mines (USA) Corp.

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Table 1

Pinenut Daily Volume of Water Pumped

Date	Time (Start/Stop)	Flow Meter Reading (gallons)	Gallons Pumped	Minutes the pump ran	Flow Rate (gpm)
06/22/11 to 07/27/11		No water pumped			
07/27/11	16:00	852,590	--	--	--
07/28/11	15:22	884,420	31,830	2,842	11
07/29/11	15:07	919,510	35,090	2,865	12
07/30/11	15:06	948,820	29,310	2,879	10
07/31/11	15:01	980,800	31,980	2,875	11
08/01/11	14:51	1,012,360	31,560	2,870	11
08/02/11	10:30	1,054,430	42,070	2,619	16
08/03/11	10:20	1,080,000	25,570	2,870	9
08/09/11	9:20	1,128,350	48,350	10,020	5
08/10/11	11:00	1,141,980	13,630	1,540	9
08/11/11	9:41	1,171,490	29,510	2,801	11
08/12/11	15:14	1,193,840	22,350	1,773	13
08/13/11	10:44	1,234,080	40,240	2,610	15
08/14/11	11:02	1,265,650	31,570	1,458	22
08/15/11	10:49	1,296,280	30,630	2,867	11
08/16/11	10:41	1,327,100	30,820	2,872	11
08/17/11	9:23	1,354,970	27,870	2,802	10
08/23/11	10:45	1,545,420	190,450	8,722	22
08/24/11	10:45	1,575,880	30,460	1,440	21
08/25/11	10:45	1,607,200	31,320	1,440	22
08/26/11	15:40	1,628,630	21,430	1,735	12
08/27/11	11:00	1,668,830	40,200	2,600	15
08/28/11	11:10	1,699,150	30,320	1,450	21
08/29/11	8:00	1,710,300	11,150	2,690	4
8/30/11 to 9/5/11		No water pumped			
09/06/11	18:00	1,710,300	--	--	--
09/07/11	15:00	1,735,770	25,470	2,700	9
09/08/11	14:50	1,767,280	31,510	2,870	11
09/09/11	12:00	1,793,670	26,390	2,710	10
9/9/11/11 to 10/25/11		No water pumped			
10/25/11	8:45	1,793,670	--	--	--
10/26/11	9:00	1,834,970	41,300	1,455	28
10/26/11 to 11/01/11		No water pumped			
11/01/11	8:30	1,834,970	--	--	--
11/02/11	15:30	1,843,200	8,230	1,860	4
11/2/11 to 11/22/11		See Note 1			
11/22/11	8:00	1,862,400	19,200	960	20
11/22/11 to 11/29/11		No water pumped			
11/29/11	8:00	1,862,400	--	--	--
11/30/11	15:00	1,909,150	46,750	1,860	25
11/30/11 to 12/31/11		No water pumped			

Total Gallons Pumped 1,056,560

AVG Flow Rate = 13.72

Notes:

1. Log reporting errors occurred between 11/2 and 11/22 and approximately 16 hours of pumping occurred during this time but was not recorded. The log report form has been modified and training of additional personel has occurred at the site as a result of this error.

Table 2
Pinenut Mine Non-Stormwater Impoundment Sample Summary

Analytes		4/12/2011*	6/20/2011*	8/17/2011	11/29/2011
Metals	**Units**	**Pond Water**	**Pond Water**	**Pond Water**	**Pond Water**
Antimony	mg/L	<0.0008	<0.0008	<0.0008	<0.0008
Arsenic	mg/L	0.002	0.002	<0.001	0.043
Barium	mg/L	0.045	0.006	0.039	0.035
Beryllium	mg/L	<0.0002	<0.0002	<0.0002	0.0003[b]
Cadmium	mg/L	0.0013	0.0013	0.0004[b]	0.0022
Chromium	mg/L	<0.02	<0.02	<0.02	<0.02
Copper	mg/L	<0.02	<0.02	<0.02	0.10[b]
Iron	mg/L	0.06	0.06	18.10	72.90
Lead	mg/L	0.0044	0.0017	<0.0002	0.0151
Manganese	mg/L	0.90	1.39	1.34	2.63
Mercury	mg/L	<0.0002	<0.0002	<0.0002	<0.0002
Nickel	mg/L	1.23	1.24	1.12	0.39
Selenium	mg/L	0.0016	0.0008	0.0005[b]	0.0009
Silver	mg/L	<0.02	<0.02	<0.02	<0.02
Thallium	mg/L	0.0011	0.0016	<0.0002	0.0003[b]
Uranium	mg/L	0.3454	0.7370	0.5725	0.9970
Uranium (total)	mg/L	0.3626	1.530	1.070	1.010
Vanadium	mg/L	<0.01	<0.01	<0.01	0.02[b]
Zinc	mg/L	2.25	2.74	2.50	1.90
Radionuclides - Total					
Gross Alpha	pCi/L	410 ± 41	720 ± 59	700 ± 59	1100 ± 81
Gross Beta	pCi/L	170 ± 17	520 ± 30	350 ± 25	740 ± 21
Radium 226	pCi/L	100 ± 1.3	300 ± 2.6	210 ± 2.1	160 ± 1.8
Radium 228	pCi/L	0.93 ± 0.45	1.4 ± 0.46	2 ± 0.44[c]	3.1 ± 0.51
Radon 222	pCi/L	180 ± 41	15000 ± 270	11000 ± 220	3400 ± 110
Thorium 228	pCi/L	-0.05 + 0.34	0.03 + 0.43	-0.13 + 0.33	0.65 + 0.54
Thorium 230	pCi/L	0.55 ± 0.34	-0.08 ± 0.43	0.26 ± 0.53	17 ± 1.5
Thorium 232	pCi/L	0.03 ± 0.12	0.09 ± 0.39	-0.02 ± 0.4	0.13 ± 0.41
Uranium 234	pCi/L	150 ± 11	260 ± 14	250 ± 16[a]	450 ± 28[d]
Uranium 235	pCi/L	4.5 ± 2	5.5 ± 3	7.5 ± 3.4[a]	32 ± 7.9[d]
Uranium 238	pCi/L	120 ± 9.9	205 ± 12	189 ± 14[a]	337 ± 24[d]
Major Ions					
Bicarbonate as HCO3	mg/L	21	65	42	54
Calcium	mg/L	403	499	484	530
Carbonate as CO3	mg/L	<2	<2	<2	<2
Chloride	mg/L	35	42	42	40
Fluoride	mg/L	0.6	0.5	0.5	0.7
Magnesium	mg/L	237	308	286	319
Nitrate/Nitrite as N	mg/L	0.36	<0.02	<0.02	0.04[b]
Potassium	mg/L	47.2	61.7	60.1	64.2
Phosphorous Ortho Dissolved	mg/L	<0.01	0.03	0.04[b]	<0.01
Silica	mg/L	3.7	5.7	5.9	5.9
Sodium	mg/L	66.5	81.1	78.3	82.2[e]
Sulfate	mg/L	1900	2480	2700	2400
Physical Properties					
Hardness as $CaCO_3$	mg/L	<2	<2	<2	<2
TDS	mg/L	3060	3890	3700	3550

* Flags were removed from these sample dates as they were previously reported.

Notes:

< Indicates that analyte was not detected above the reporting limit indicated

(a) The isotopic uranium result was qualified with the N1 flag on the extended qualifier report. The chemist noted that the associated prep blank had reported concentrations of isotopic uranium. No significant impact to the sample result is expected because the sample results are greater than 10 times the activity of the blank. Additionally, the isotopic uranium results are re-qualified because the sample concentrations were high, causing low tracer yield.

(b) Analyte concentration detected at a value between the method detection limit and the practical quantitation limit. The associated value is an estimated quantity.

(c) The chemist noted that low barium tracer recovery was evident throughout the workgroup for Radium 228. This caused the blank and duplicate QC failures. Results should be considered estimated.

(d) Isotopic uranium results are qualified due to the high uranium content, which causes low carrier results.

(e) The analyte was detected in the calibration blank. The ample value was 10 times greater than the concentration in