Paul Baker - DOGM

M/035/0009 6757

Leslie

Peter

Rio Tinto Kennecott
On Behalf of Kennecott Barneys Canyon Mining Company
4700 Daybreak Parkway
South Jordan, Utah 84095
T (801)
M (801)

Steve Schnoor
Manager – Environment, Land and Energy

3 August 2015

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AUG 03 2015
DIV. OF OIL, GAS & MINING

Mr. Paul Baker, Minerals Program Manager
Division of Oil, Gas & Mining
Utah Department of Natural Resources
P.O. Box 145801
Salt Lake City, Utah 84114-5801

Subject: Amendment to Installation of a New Pipeline to Capture Seep Water Adjacent and South of Barneys Leach Pads: Addressing comments from DOGM's Letter on July 20, 2015

Dear Mr. Baker:

Please see the attached comments from Rio Tinto Kennecott (RTKC) on behalf of Barneys Canyon Mining Company addressing Division of Oil, Gas & Mining (DOGM) questions/observations from its July 20, 2015 letter. In addition please see the attached MR-REV for placement in the Barneys NOI.

Once concurrence and approval is received from the DOGM, Rio Tinto Kennecott (RTKC), on behalf of Barneys Canyon Mine, will proceed with the project.

If you should have questions or comments on this proposal, please contact Brian Vinton at (801) 569-7887.

Respectfully submitted on Behalf of Barneys Canyon Mine

Brian Vinton for Steve Schnoor

Steve Schnoor
Manager-Environment, Land and Energy
Rio Tinto Kennecott

Cc: Leslie Hepler (DOGM)
Brian Hamos (UDWQ)

Rio Tinto

Attachment 1:
Responses to DOGMs July 20, 2015 letter requesting information:

1. DOGM: Determine whether material below the spring capture points has arsenic or other constituents that are higher than appropriate for the post-mining land use.

   RTKC Response: RTKC has sampled the drainage bottom for North Barneys channel and will address the soil in the channel bottom as part of its work plan. The route of the pipeline to be installed is not in the channel bottom so the soil locations with metal concentrations above the action levels will not be disturbed when pipeline is installed. Attached are two tables containing data collected during field screening work with an XRF and from samples submitted to Kennecott's Environmental Lab (KEL). The attached map shows the location for both the XRF sample locations and the samples sent to KEL.

2. DOGM: The conclusion that evapoconcentration is occurring as water flows down drainage appears incorrect, since TDS and other constituents are not also increasing. Re-evaluate this conclusion and change discussion accordingly.

   RTKC Response: RTKC does not believe its observation is incorrect and whether there is evapoconcentration or not, the plan to capture the water can be carried out along with the upcoming soil mitigation work, so the evaporation question does not come into play. The solubility of the various analytes varies so increasing TDS would not necessarily happen when additional water is added to the existing precipitated mass.

3. DOGM: Some of their arsenic numbers appear to be incorrect, and need to be carefully explained if they remain. Specifically, the total arsenic concentrations in three cases (at multiple dates at the C and D sampling locations) are lower than the dissolved concentrations. Total arsenic should be comprised of dissolved arsenic and arsenic present in total suspended solids.

   RTKC Response: RTKC agrees that totals for metals and metalloids should be greater in any particular water sample than the dissolved portion. RTKC viewed the sample bottles (reject material is kept for several months) and discovered suspended solids in BCS2845D, which would be the dissolved sampled, collected on 6/19/2015 and realize that for this sample on 6/19/2015 the total and dissolved bottles were mislabeled. This means for this sample, the total arsenic is 223 ug/l and the dissolved is 190 ug/l and also the total iron is 359 ug/l and the dissolved iron is less than detection. The table (Table 2) has been updated to reflect these changes and the updated table is attached. For the other samples, when differences between total and dissolved concentrations are less than 5 ug/l and concentrations are low, we know that we are within the accuracy limits of what the laboratory equipment can provide. It is not uncommon for total and dissolved concentrations to be very similar.

4. DOGM: The total iron concentrations also appear to be incorrect, since the total iron was below detection, but the dissolved component was 0.359 ug/l. Correct and explain.

   RTKC: See response for #3.

5. DOGM: Identify the owner of the existing water right at the springs.

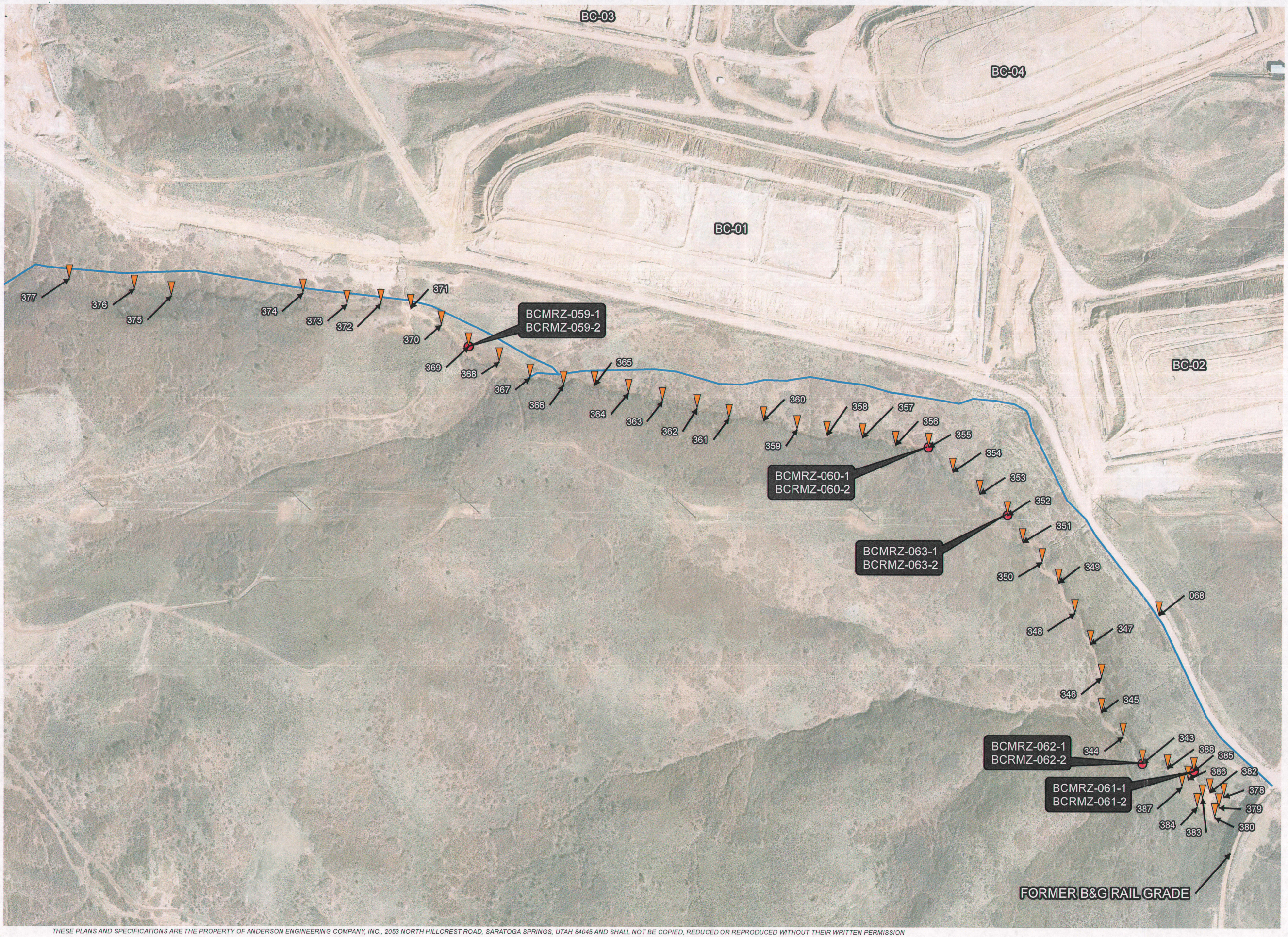
   RTKC: There are three points of diversion for three different water rights for points along the North Barneys drainage where the proposed pipeline and capture locations will be placed and each is owned by Kennecott Utah Copper LLC. RTKC has also filed a change application for the two capture locations for its proposed new pipeline and these have been approved by the State DNR, Water Rights.

Rio Tinto

Table 2: North Barneys Creek (2015 Data)

Analyte	BCS2845A 3/13/2015 Total Results	BCS2845A 3/13/2015 Dissolved Results	BCS2845A 6/19/2015 Total Results	BCS2845A 6/19/2015 Dissolved Results	BCS2845C 3/13/2015 Total Results	BCS2845C 3/13/2015 Dissolved Results	BCS2845C 6/19/2015 Total Results	BCS2845C 6/19/2015 Dissolved Results	BCS2845D 3/13/2015 Total Results	BCS2845D 3/13/2015 Dissolved Results	BCS2845D 6/19/2015 Total Results	BCS2845D 6/19/2015 Dissolved Results
Flow (gpm)	15.8		7.55		7.55		4.57		13.4		4.57	
Ag-MS (ug/L)	Below CRDL	Below CRDL	Below CRDL	Below CRDL	Below CRDL	Below CRDL	Below CRDL	Below CRDL	Below CRDL	Below CRDL	Below CRDL	Below CRDL
Al-MS (ug/L)	37	Below CRDL			357	Below CRDL			24	Below CRDL		
ALK (mg/L as CaCO3)	345		346		345		391		292		365	
AS-MS (ug/L	36	38	42	34	65	51	140	114	86	87	223	190
BA-MS (ug/L)	89	82	100	81	66	48	72	62	41	39	63	56
CA (mg/L)	172		197		171		202		170		187	
CD-MS (ug/L)	Below CRDL	Below CRDL	Below CRDL	Below CRDL	Below CRDL	Below CRDL	Below CRDL	Below CRDL	Below CRDL	Below CRDL	Below CRDL	Below CRDL
CL (mg/L)	280		274		348		363		349		379	
COND-Lab (umhos/cm)	1960				2080				2040			
COND-field (umhos/cm)	2117		2130		2190		2240		2126		2330	
CR-MS (ug/L)	Below CRDL	Below CRDL	Below CRDL	Below CRDL	Below CRDL	Below CRDL	Below CRDL	Below CRDL	Below CRDL	Below CRDL	Below CRDL	Below CRDL
CU-MS (ug/L)	Below CRDL	Below CRDL	Below CRDL	Below CRDL	Below CRDL	Below CRDL	Below CRDL	Below CRDL	Below CRDL	Below CRDL	Below CRDL	Below CRDL
FE-MS (ug/L)	44	Below CRDL		Below CRDL	445	Below CRDL		Below CRDL	68	40	359	
FE-ICPB (ug/L)			363				347					Below CRDL
HARDNESS (mg/L as CaCO3)	840		980		801		948		802		894	
HG-B (ug/L)	Below CRDL		Below CRDL		Below CRDL		Below CRDL		Below CRDL		Below CRDL	
K (mg/L)	4.9		5.4		3.7		4.6		4.2		4.4	
MG (mg/L)	100	100	119		91	89	108		92	95	104	
MN-MS (ug/L)	Below CRDL	Below CRDL			154	118			136	133		
NA (mg/L)	131		138		145		164		155		169	
NO2-N (mg/L)	Below CRDL		Below CRDL		Below CRDL		Below CRDL		Below CRDL		Below CRDL	
NO3-N (mg/L)	6.6		6.7		1.9		0.7		0.4		Below CRDL	
PB-MS (ug/L)	Below CRDL	Below CRDL	Below CRDL	Below CRDL	Below CRDL	Below CRDL	Below CRDL	Below CRDL	Below CRDL	Below CRDL	Below CRDL	Below CRDL
PH-LAB (s.u.)	7.96				7.83				8.26			
PH (s.u.)	8.05		6.88		7.77		7.31		8		7.28	
SE-DRC (ug/L)	21	22	21	19	15	15	5	5	8	8	4	4
SO4 (mg/L)	428		482		362		389		363		375	
TDS (mg/L)	1430		1240		1410		1470		1340		1420	
TEMP (Degrees C)	12.3		11.4		9.5		13.8		7.8		15.7	
TI (ug/L)	Below CRDL	Below CRDL			10				Below CRDL	Below CRDL		
TL-MS (ug/L)			10	8			5	4			7	6
TSS (mg/L)	Below CRDL		4		24		26		Below CRDL		190	
ZN-MS (ug/L)	93	13	33	11	56		Below CRDL			Below CRD	Below CRDL	Below CRDL

Contracted Reported Detection Limit (CRDL)



General Notes

SEEP PIPELINE ALIGNMENT

CHARACTERIZATION SAMPLE LOCATION BY SAMPLE ID

TEST PIT LOCATION BY TEST PIT NUMBER

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SCALE IN FEET
0 200 400

RIO TINTO
BARNEYS CANYON

ANDERSON
ENGINEERING COMPANY INC.
2053 N HILLCREST RD. SARATOGA SPRINGS, UT 84045 801/874-2222

BARNEYS CANYON
MINE RECLAMATION

SAMPLE AND TEST PIT LOCATIONS
IN NORTH BARNEYS DRAINAGE
NEAR SEEP PIPELINE CORRIDOR

SALT LAKE COUNTY, UTAH

DRAWN BY:	CN
ENGINEER:	KC
APPROVED:	

Project BCMR	Sheet 1
Date 29-JUL-2015	
Scale 1 " = 400 '	

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XRF Screening Results (mg/kg)

TEST PIT	LATITUDE	LONGITUDE	READING	DATE	DEPTH	ARSENIC	CADMIUM	LEAD	SELENIUM
068	40.594055	-112.10465	1211	04/17/2014	2 INCHES	70	< 35	< 28	< 11
068	40.594013	-112.10461	1212	04/17/2014	6 INCHES	24	< 26	< 18	< 8
068	40.594051	-112.10454	1213	04/17/2014	18 INCHES	< 28	< 46	< 31	< 14
068	40.593987	-112.10457	1214	04/17/2014	36 INCHES	26	< 28	< 19	< 8
343	40.592216	-112.10477	484	09/03/2014	SURFACE	398	< 23	39	< 7
343	40.592205	-112.10474	485	09/03/2014	15 INCHES	48	< 29	71	< 8
343	40.592182	-112.10478	486	09/03/2014	12 INCHES	217	< 28	< 20	< 8
343	40.59227	-112.10482	487	09/03/2014	6 INCHES	497	< 31	< 22	< 9
343	40.592178	-112.10478	489	09/03/2014	SURFACE	709	< 29	< 23	< 10
343	40.59214	-112.10484	490	09/03/2014	SURFACE	36	< 36	34	< 11
343	40.592312	-112.10471	491	09/03/2014	SURFACE	602	< 33	60	< 11
343	40.592323	-112.10467	492	09/03/2014	SURFACE	44	< 45	57	< 14
344	40.592598	-112.10516	493	09/03/2014	SURFACE	699	< 30	< 19	< 9
344	40.592598	-112.10516	494	09/03/2014	12 INCHES	45	< 33	< 25	< 9
344	40.592548	-112.10505	495	09/03/2014	8 INCHES	240	< 38	< 30	< 11
344	40.592445	-112.10518	496	09/03/2014	SURFACE	860	< 44	< 38	< 15
344	40.592422	-112.10521	497	09/03/2014	SURFACE	< 19	< 26	52	< 7
345	40.592819	-112.10547	498	09/03/2014	SURFACE	802	< 31	29	< 11
345	40.592819	-112.10547	499	09/03/2014	12 INCHES	154	< 30	< 18	< 8
345	40.59304	-112.10546	500	09/03/2014	8 INCHES	980	< 42	< 29	< 14
345	40.592857	-112.10538	501	09/03/2014	SURFACE	931	< 42	< 29	< 13
345	40.592854	-112.10536	502	09/03/2014	SURFACE	33	< 36	78	< 10
345	40.59277	-112.10568	503	09/03/2014	SURFACE	420	< 30	< 25	< 9
345	40.592804	-112.10568	504	09/03/2014	SURFACE	58	< 33	63	< 9
345	40.592709	-112.1057	505	09/03/2014	SURFACE	< 15	< 25	< 20	< 6
346	40.593292	-112.10545	506	09/03/2014	SURFACE	272	< 37	< 27	< 11
346	40.593086	-112.1055	507	09/03/2014	12 INCHES	74	< 31	< 24	< 10
346	40.592442	-112.10561	508	09/03/2014	8 INCHES	451	< 37	< 27	< 12
347	40.593678	-112.10561	509	09/03/2014	SURFACE	167	< 39	< 30	< 11
347	40.593697	-112.10561	510	09/03/2014	SURFACE	650	< 39	< 26	< 12
347	40.593697	-112.10561	511	09/03/2014	12 INCHES	79	< 32	< 22	< 9
347	40.593704	-112.10562	512	09/03/2014	8 INCHES	218	< 42	< 27	< 14
348	40.594051	-112.10584	513	09/03/2014	SURFACE	428	< 33	< 22	< 11

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XRF Screening Results (mg/kg)

TEST PIT	LATITUDE	LONGITUDE	READING	DATE	DEPTH	ARSENIC	CADMIUM	LEAD	SELENIUM
348	40.594051	-112.10584	514	09/03/2014	8 INCHES	479	44	< 26	< 11
348	40.595242	-112.10568	515	09/03/2014	12 INCHES	405	< 38	< 25	< 11
349	40.594322	-112.10616	516	09/03/2014	SURFACE	424	< 36	< 23	< 12
349	40.594124	-112.10613	517	09/03/2014	18 INCHES	62	< 36	38	< 12
349	40.594387	-112.106	518	09/03/2014	12 INCHES	283	< 41	< 26	< 11
350	40.594616	-112.10635	519	09/03/2014	SURFACE	176	< 31	< 21	< 9
350	40.594646	-112.10636	520	09/03/2014	SURFACE	125	< 34	< 23	< 10
350	40.594646	-112.10636	521	09/03/2014	6 INCHES	307	< 39	< 32	< 14
350	40.594646	-112.10636	522	09/03/2014	12 INCHES	198	< 30	< 19	< 8
351	40.594841	-112.10667	523	09/03/2014	SURFACE	1074	< 39	< 32	< 15
351	40.594841	-112.10667	524	09/03/2014	12 INCHES	103	< 35	80	< 12
351	40.594807	-112.10664	525	09/03/2014	8 INCHES	144	41	< 29	< 8
351	40.594845	-112.10668	526	09/03/2014	6 INCHES	328	< 35	< 25	< 12
352	40.59515	-112.1069	527	09/03/2014	SURFACE	700	< 27	< 19	< 9
352	40.595036	-112.10687	528	09/03/2014	8 INCHES	143	< 36	30	< 9
352	40.5951	-112.10693	529	09/03/2014	4 INCHES	153	< 39	< 21	< 11
353	40.595345	-112.10733	531	09/03/2014	SURFACE	438	< 22	< 15	< 6
353	40.595375	-112.10732	532	09/03/2014	8 INCHES	240	< 27	< 18	< 8
353	40.595375	-112.10732	533	09/03/2014	18 INCHES	65	37	27	< 8
353	40.595348	-112.10734	534	09/03/2014	SURFACE	1242	< 32	42	< 12
353	40.59539	-112.10736	535	09/03/2014	SURFACE	38	< 31	62	< 7
353	40.595421	-112.1073	536	09/03/2014	SURFACE	24	< 24	< 19	< 7
354	40.595623	-112.10777	537	09/03/2014	SURFACE	491	< 21	< 14	< 7
354	40.595623	-112.10777	538	09/03/2014	12 INCHES	29	< 34	50	< 9
354	40.5956	-112.1079	539	09/03/2014	8 INCHES	220	< 23	< 16	< 7
354	40.59576	-112.10775	540	09/03/2014	SURFACE	31	< 30	60	< 7
355	40.596138	-112.1082	431	09/02/2014	SURFACE	359	< 31	< 21	< 9
355	40.595978	-112.10818	432	09/02/2014	18 INCHES	93	< 28	51	< 8
355	40.595901	-112.10819	433	09/02/2014	12 INCHES	283	< 27	< 19	< 8
356	40.596016	-112.10864	427	09/02/2014	SURFACE	501	< 27	< 19	< 9
356	40.596016	-112.10864	428	09/02/2014	12 INCHES	315	< 24	26	< 7
357	40.59605	-112.10925	421	09/02/2014	SURFACE	770	< 24	< 17	< 7
357	40.59605	-112.10925	422	09/02/2014	12 INCHES	325	< 23	< 15	< 7

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XRF Screening Results (mg/kg)

TEST PIT	LATITUDE	LONGITUDE	READING	DATE	DEPTH	ARSENIC	CADMIUM	LEAD	SELENIUM
358	40.596134	-112.10971	414	09/02/2014	SURFACE	511	< 21	< 14	< 7
358	40.596111	-112.10964	415	09/02/2014	12 INCHES	93	< 27	< 16	< 7
358	40.596104	-112.1097	416	09/02/2014	6 INCHES	151	< 26	< 15	< 7
358	40.596066	-112.1097	417	09/02/2014	3 INCHES	113	< 43	< 25	< 12
359	40.596107	-112.11011	408	09/02/2014	SURFACE	519	< 21	< 15	< 7
359	40.596134	-112.11015	409	09/02/2014	12 INCHES	351	< 38	< 29	< 15
359	40.596134	-112.11015	410	09/02/2014	18 INCHES	322	< 26	< 16	< 6
360	40.596294	-112.11058	405	09/02/2014	SURFACE	54	< 23	44	< 6
360	40.596294	-112.11071	406	09/02/2014	12 INCHES	34	< 25	37	< 7
361	40.596394	-112.11124	402	09/02/2014	SURFACE	97	< 23	< 17	< 7
361	40.596466	-112.11123	403	09/02/2014	6 INCHES	57	< 22	27	< 6
362	40.596397	-112.11181	398	09/02/2014	SURFACE	51	< 25	52	< 6
362	40.596523	-112.11186	399	09/02/2014	12 INCHES	37	< 24	< 17	< 6
362	40.596558	-112.11176	400	09/02/2014	12 INCHES	296	< 22	< 15	< 6
362	40.596458	-112.11171	401	09/02/2014	12 INCHES	< 17	< 28	< 22	< 7
363	40.59647	-112.11231	390	09/02/2014	SURFACE	430	< 18	< 13	< 5
363	40.59647	-112.11231	391	09/02/2014	24 INCHES	194	< 23	< 15	< 6
363	40.596592	-112.11231	393	09/02/2014	12 INCHES	223	< 23	18	< 7
363	40.595882	-112.11182	394	09/02/2014	18 INCHES	324	< 24	< 16	< 7
364	40.5966	-112.11277	385	09/02/2014	SURFACE	79	< 23	21	< 6
364	40.596668	-112.11264	386	09/02/2014	8 INCHES	60	< 22	21	< 6
365	40.59671	-112.1133	378	09/02/2014	12 INCHES	123	< 19	30	< 6
365	40.596684	-112.11334	379	09/02/2014	6 INCHES	122	< 34	< 26	< 10
365	40.596745	-112.11333	380	09/02/2014	3 INCHES	169	< 24	< 15	< 7
365	40.596779	-112.11329	381	09/02/2014	SURFACE	381	< 26	< 19	< 8
366	40.596615	-112.11393	373	09/02/2014	SURFACE	28	< 24	117	< 7
366	40.59671	-112.11387	374	09/02/2014	12 IN	32	< 37	< 30	< 11
367	40.596748	-112.11437	369	09/02/2014	SURFACE	144	< 24	< 17	< 6
367	40.596458	-112.11401	370	09/02/2014	18 INCHES	135	< 29	< 21	< 8
368	40.596939	-112.11476	361	09/02/2014	SURFACE	108	< 18	< 12	< 5
368	40.596935	-112.11477	362	09/02/2014	SURFACE	419	< 22	< 13	< 6
368	40.596951	-112.11482	363	09/02/2014	10 INCHES	489	< 22	< 13	< 6
369	40.597107	-112.11522	354	09/02/2014	SURFACE	579	< 24	< 17	< 7

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XRF Screening Results (mg/kg)

TEST PIT	LATITUDE	LONGITUDE	READING	DATE	DEPTH	ARSENIC	CADMIUM	LEAD	SELENIUM
369	40.597107	-112.11522	355	09/02/2014	18 INCHES	145	< 27	< 18	< 7
369	40.597008	-112.1153	356	09/02/2014	12 INCHES	126	32	< 21	< 9
369	40.597118	-112.11523	357	09/02/2014	6 INCHES	660	< 29	< 21	< 9
370	40.597359	-112.11566	349	09/02/2014	SURFACE	531	< 25	< 15	< 7
370	40.597359	-112.11566	350	09/02/2014	18 INCHES	782	< 32	< 21	< 9
371	40.597538	-112.11616	342	09/02/2014	SURFACE	483	< 26	< 16	< 8
371	40.597939	-112.11597	343	09/02/2014	12 INCHES	409	< 26	< 16	< 7
372	40.597698	-112.11652	335	09/02/2014	SURFACE	1410	< 23	< 16	< 8
372	40.597626	-112.11662	336	09/02/2014	12 INCHES	215	< 34	< 22	< 9
372	40.59761	-112.11654	337	09/02/2014	12 INCHES	458	< 26	< 20	< 7
373	40.597652	-112.11711	331	09/02/2014	SURFACE	106	< 25	< 18	< 8
373	40.597759	-112.11718	332	09/02/2014	12 INCHES	62	< 26	< 17	< 7
374	40.597702	-112.11785	311	09/02/2014	SURFACE	399	< 20	< 14	< 6
374	40.597702	-112.11785	312	09/02/2014	12 INCHES	72	< 28	40	< 7
374	40.598049	-112.11792	313	09/02/2014	6 INCHES	106	< 21	28	< 5
374	40.597698	-112.11784	314	09/02/2014	SURFACE	215	< 24	< 15	< 6
374	40.59771	-112.11788	315	09/02/2014	SURFACE	208	< 21	< 15	< 6
374	40.597725	-112.11785	316	09/02/2014	SURFACE	349	< 27	< 17	< 8
374	40.597721	-112.11784	317	09/02/2014	3 INCHES	102	< 25	< 14	< 6
374	40.597744	-112.11783	318	09/02/2014	3 INCHES	307	< 19	< 12	< 5
374	40.597778	-112.11784	319	09/02/2014	3 INCHES	305	< 27	< 17	< 6
375	40.597786	-112.11991	309	09/02/2014	SURFACE	31	< 21	36	< 5
375	40.597786	-112.11991	310	09/02/2014	24 INCHES	16	< 23	28	< 6
376	40.597759	-112.12045	306	09/02/2014	SURFACE	25	< 24	< 18	< 7
376	40.597759	-112.12045	307	09/02/2014	20 INCHES	70	< 24	< 17	< 6
376	40.59774	-112.12035	308	09/02/2014	SURFACE	31	< 19	35	< 5
377	40.598927	-112.12338	295	09/02/2014	SURFACE	95	< 24	< 15	< 6
377	40.598827	-112.12331	296	09/02/2014	SURFACE	178	< 24	< 14	< 7
377	40.597984	-112.12146	297	09/02/2014	SURFACE	115	< 17	< 12	< 5
377	40.598083	-112.12187	298	09/02/2014	12 INCHES	268	< 25	< 17	< 7
377	40.597904	-112.12141	299	09/02/2014	6 INCHES	52	< 33	61	< 9
377	40.597904	-112.12141	300	09/02/2014	9 INCHES	32	< 29	< 20	< 8
377	40.597904	-112.12141	301	09/02/2014	12 INCHES	42	< 25	< 14	< 6

ANDERSON ENGINEERING

XRF Screening Results (mg/kg)

TEST PIT	LATITUDE	LONGITUDE	READING	DATE	DEPTH	ARSENIC	CADMIUM	LEAD	SELENIUM
377	40.597904	-112.12141	302	09/02/2014	12 INCHES	35	< 24	23	< 6
377	40.597897	-112.12137	303	09/02/2014	SURFACE	83	< 17	< 13	< 5
377	40.598007	-112.12136	304	09/02/2014	SURFACE	340	< 18	< 14	< 5
377	40.598057	-112.12132	305	09/02/2014	SURFACE	82	< 24	168	< 6
378	40.591808	-112.10355	447	09/03/2014	SURFACE	93	< 30	< 20	< 10
378	40.591877	-112.10351	448	09/03/2014	SURFACE	66	< 28	< 18	< 7
378	40.591858	-112.10348	449	09/03/2014	SURFACE	99	< 26	< 17	< 8
378	40.591808	-112.10352	450	09/03/2014	6 INCHES	82	< 32	< 21	< 8
378	40.591728	-112.1036	451	09/03/2014	18 INCHES	128	< 28	< 18	< 8
379	40.591713	-112.10363	452	09/03/2014	SURFACE	201	< 31	< 24	< 9
379	40.591713	-112.10363	453	09/03/2014	24 INCHES	552	< 27	< 20	< 8
379	40.591705	-112.10361	454	09/03/2014	12 INCHES	1194	< 27	27	< 9
379	40.591694	-112.10358	455	09/03/2014	SURFACE	179	< 29	< 21	< 9
379	40.591633	-112.10351	456	09/03/2014	SURFACE	35	< 26	54	< 8
379	40.591633	-112.10346	457	09/03/2014	SURFACE	49	< 32	34	< 9
380	40.591587	-112.10376	458	09/03/2014	SURFACE	908	< 30	42	< 10
380	40.591537	-112.1038	459	09/03/2014	SURFACE	344	< 35	< 28	< 11
380	40.591499	-112.10381	460	09/03/2014	SURFACE	31	< 32	106	< 8
380	40.591545	-112.10358	461	09/03/2014	SURFACE	313	< 35	55	< 11
380	40.591511	-112.10367	462	09/03/2014	SURFACE	46	< 27	< 21	< 8
380	40.591675	-112.10375	463	09/03/2014	24 INCHES	229	< 35	< 26	< 11
382	40.591908	-112.10378	443	09/03/2014	18 INCHES	2047	< 48	< 42	< 21
382	40.591923	-112.10379	444	09/03/2014	SURFACE	1922	< 35	43	16
382	40.591923	-112.10379	445	09/03/2014	18 INCHES	867	< 30	< 21	< 10
382	40.591934	-112.10378	446	09/03/2014	SURFACE	110	< 38	84	< 13
383	40.591812	-112.10385	441	09/03/2014	SURFACE	1130	< 32	28	< 11
383	40.59206	-112.10365	442	09/03/2014	18 INCHES	2121	49	< 35	< 20
384	40.591724	-112.10397	438	09/03/2014	SURFACE	982	< 29	39	< 11
384	40.592136	-112.10401	439	09/03/2014	18 INCHES	486	< 29	< 22	< 10
384	40.591717	-112.10398	440	09/03/2014	SURFACE	72	< 21	38	< 6
385	40.592094	-112.10402	471	09/03/2014	SURFACE	1348	< 40	< 30	< 14
385	40.592102	-112.10402	472	09/03/2014	SURFACE	49	< 40	37	< 13
385	40.592102	-112.10402	473	09/03/2014	18 INCHES	147	< 30	< 21	< 9

ANDERSON ENGINEERING

XRF Screening Results (mg/kg)

TEST PIT	LATITUDE	LONGITUDE	READING	DATE	DEPTH	ARSENIC	CADMIUM	LEAD	SELENIUM
385	40.592102	-112.10402	474	09/03/2014	12 INCHES	840	< 36	< 30	< 13
385	40.592102	-112.10402	475	09/03/2014	15 INCHES	228	< 29	< 20	< 9
386	40.592075	-112.10407	468	09/03/2014	SURFACE	1316	< 41	< 32	< 14
386	40.592068	-112.1042	469	09/03/2014	18 INCHES	277	< 40	< 34	< 13
387	40.591938	-112.10422	465	09/03/2014	SURFACE	1795	< 34	< 27	< 13
387	40.591896	-112.10426	466	09/03/2014	SURFACE	2114	< 41	< 34	< 17
387	40.591896	-112.10427	467	09/03/2014	SURFACE	39	< 35	87	< 9
388	40.59219	-112.10443	478	09/03/2014	SURFACE	958	< 25	35	< 8
388	40.592163	-112.10445	479	09/03/2014	SURFACE	46	< 36	< 29	< 10
388	40.592167	-112.10444	480	09/03/2014	12 INCHES	339	< 34	< 23	< 10
388	40.592167	-112.10444	481	09/03/2014	18 INCHES	73	< 32	61	< 9
388	40.5923	-112.10434	482	09/03/2014	SURFACE	1351	< 29	34	< 10
388	40.592312	-112.10431	483	09/03/2014	SURFACE	< 30	< 33	134	< 10

Barneys Canyon Mine -Heap Leach Area

Table 1: Sample Information

Sample ID	Date and Time	Material Type	Sample Represents	Final Disposition of Represented Soil	Representative Depth	Configuration	Soil Description
BCMRZ-059-1	9/2/2014 1:05:10 PM	Soil	In-situ Material: North Sidewall Test Pit 369	On site	0 to 8 inches below ground surface.	Vertical channel characterization sample, collected from north sidewall.	Sandy silt with gravel, moist, light tan, subangular gravel, 0.125 to 1.0 inch, disturbed.
BCMRZ-059-2	9/2/2014 1:15:02 PM	Soil	In-situ Material: North Sidewall Test Pit 369	On site	8 to 18 inches below ground surface.	Vertical channel characterization sample, collected from north sidewall.	Silty sand with gravel, moist, medium brown, 1.0 to 3.0 inch, subangular gravel, disturbed.
BCMRZ-060-1	9/2/2014 3:32:37 PM	Soil	In-situ Material: East Sidewall Test Pit 355	On site	0 to 12 inches below ground surface.	Vertical channel characterization sample, collected from east sidewall.	Sandy silt with gravel, moist, medium brown, 0.125 to 1.5 inch, subangular gravel, disturbed.
BCMRZ-060-2	9/2/2014 3:35 PM	Soil	In-situ Material: East Sidewall Test Pit 355	On site	12 to 18 inches below ground surface.	Vertical channel characterization sample, collected from east sidewall.	Sandy silt with gravel, moist, medium brown, 0.125 to 1.5 inch, subangular gravel, disturbed.
BCMRZ-061-1	9/3/2014 9:57 AM	Soil	In-situ Material: West Sidewall Test Pit 385	On site	0 to 8 inches below ground surface.	Vertical channel characterization sample, collected from west sidewall.	Sandy silt/clay, dry, medium tan, medium sand, disturbed leach pad sediment present.
BCMRZ-061-2	9/3/2014 10:02 AM	Soil	In-situ Material: West Sidewall Test Pit 385	On site	22 to 24 inches below ground surface.	Vertical channel characterization sample, collected from west sidewall.	Sandy silt/clay, dry, medium tan, medium sand, disturbed leach pad sediment present.
BCMRZ-062-1	9/3/2014 10:34 AM	Soil	In-situ Material: East Sidewall Test Pit 343	On site	0 to 6 inches below ground surface.	Vertical channel characterization sample, collected from east sidewall.	Silty sand with gravel, dry, dark brown, medium sand, 0.125 to 0.25 inch, subrounded gravel, disturbed leach pad sediment present.
BCMRZ-062-2	9/3/2014 10:39 AM	Soil	In-situ Material: East Sidewall Test Pit 343	On site	12 to 15 inches below ground surface.	Vertical channel characterization sample, collected from east sidewall.	Silty sand with gravel, dry, dark brown, medium sand, 0.125 to 0.25 inch, subrounded gravel, disturbed.
BCMRZ-063-1	9/3/2014 11:43 AM	Soil	In-situ Material: North Sidewall Test Pit 352	On site	0 to 2 inches below ground surface.	Vertical channel characterization sample, collected from north sidewall.	Silty sand, dry, dark brown, medium sand, disturbed leach pad sediment present.
BCMRZ-063-2	9/3/2014 11:54:42 AM	Soil	In-situ Material: North Sidewall Test Pit 352	On site	8 to 12 inches below ground surface.	Vertical channel characterization sample, collected from north sidewall.	Gravelly silt/clay with sand, dry, dark brown, medium sand, 0.125 to 1.0 inch, subrounded gravel, disturbed leach pad sediment present.

Barneys Canyon Mine -Heap Leach Area

Table 2: Analytical Data

Soil Sample ID	Total Metals (mg/kg) SW-846, Method 3050B (preparation), 6010C (analysis, except mercury: 7471)									% Moisture	SPLP (mg/L) SW-846, Method 1312 (preparation), 6010C (analysis, except mercury: 7471)								
	Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver	Thallium		Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver	Thallium
BCMRZ-059-1	870	1,014	< 1	12	6	.3	5	< 5	31	18	2.0	0.2	< 0.01	< 0.1	< 0.05	< 0.001	< 0.1	< 0.1	0.05
BCMRZ-059-2	229	358	< 1	22	12	.2	< 5	< 5	15	14	0.9	0.2	< 0.01	< 0.1	< 0.05	< 0.001	< 0.1	< 0.1	0.06
BCMRZ-060-1	364	1,055	< 1	18	4	.3	< 5	< 5	25	10	1.1	0.2	< 0.01	< 0.1	< 0.05	< 0.001	< 0.1	< 0.1	0.05
BCMRZ-060-2	206	514	< 1	22	32	.2	< 5	< 5	13	9	-	-	-	-	-	-	-	-	-
BCMRZ-061-1	801	1,154	< 1	32	7	.5	< 5	< 5	57	12	2.9	0.2	< 0.01	< 0.1	< 0.05	< 0.001	< 0.1	< 0.1	0.08
BCMRZ-061-2	1560	1,592	4	283	59	.4	13	18	30	10	0.7	0.2	< 0.01	< 0.1	< 0.05	< 0.001	< 0.1	< 0.1	0.02
BCMRZ-062-1	789	766	< 1	16	7	.3	< 5	< 5	34	13	2.3	0.2	< 0.01	< 0.1	< 0.05	0.001	< 0.1	< 0.1	0.05
BCMRZ-062-2	42	234	< 1	30	59	< .1	< 5	< 5	2	7	-	-	-	-	-	-	-	-	-
BCMRZ-063-1	629	1,139	< 1	15	4	.4	< 5	< 5	37	16	2.6	0.4	< 0.01	< 0.1	< 0.05	0.001	< 0.1	< 0.1	0.11
BCMRZ-063-2	31	152	< 1	23	64	< .1	< 5	< 5	2	19	-	-	-	-	-	-	-	-	-

Form MR-REV-att (DOGM – Revise/Amend Change Form)
(Revised September 14, 2005)

Application for Mineral Mine Plan Revision or Amendment

Operator: Barneys Canyon Mining Company

Mine Name: Barneys Canyon Mining **File Number: M/** 035 / 0009

Provide a detailed listing of all changes to the mining and reclamation plan that will be required as a result of this change. Individually list all maps and drawings that are to be added, replaced, or removed from the plan. Include changes of the table of contents, section of the plan, pages, or other information as needed to specifically locate, identify and revise or amend the existing Mining and Reclamation Plan. **Include page, section and drawing numbers as part of the description.**

DETAILED SCHEDULE OF CHANGES TO THE MINING AND RECLAMATION PLAN

			DESCRIPTION OF MAP, TEXT, OR MATERIALS TO BE CHANGED
_ADD	X REPLACE	_ REMOVE	Replace Table 2 in 2-July-2015 letter regarding: Installation of New Pipeline to Capture Seep Water Adjacent and South of Barneys Leach Pads-Revision 1.
X ADD	_ REPLACE	_ REMOVE	Add Map 1 depicting sample and test pit locations in North Barneys Drainage near seep pipeline. Anderson Engineering
X ADD	_ REPLACE	_ REMOVE	Add table containing six pages of XRF Screening Results by Anderson Engineering. Results include sample coordinates, date of reading, sample depth and arsenic, cadmium, lead and selenium concentrations in mg/kg.
X ADD	_ REPLACE	_ REMOVE	Add Barneys Canyon Mine-Heap Leach Area with Tables 1 and Table 2 as two pages total. Table 1 contains sample information and Table 2 contains analytical information for Total Metals and SPLP data for select samples.
_ ADD	_ REPLACE	_ REMOVE	
_ ADD	_ REPLACE	_ REMOVE	
_ ADD	_ REPLACE	_ REMOVE	
_ ADD	_ REPLACE	_ REMOVE	
_ ADD	_ REPLACE	_ REMOVE	
_ ADD	_ REPLACE	_ REMOVE	

I hereby certify that I am a responsible official of the applicant and that the information contained in this application is true and correct to the best of my information and belief in all respects with the laws of Utah in reference to commitments and obligations, herein.

Brian Vinton
Print Name

Brian Vinton Principal Advisor
Sign Name, Position

03 August 2015
Date

Return to:

State of Utah
Department of Natural Resources
Division of Oil, Gas and Mining
1594 West North Temple, Suite 1210
Box 145801
Salt Lake City, Utah 84114-5801
Phone: (801) 538-5291 Fax: (801) 359-3940

FOR DOGM USE ONLY:
File #: M/ /
Approved:
Bond Adjustment: from ($)
to $

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