ENVIRONMENTAL PROTECTION AGENCY
Environmental Services Division

7431 SDMS

CHAIN OF CUSTODY RECORD

236-5052 REF. #11

186 Lincoln Street
Denver, Colorado 80295

Water Data — 7/8/85

PROJ. NO.: R8-8505-27

PROJECT NAME: Richardson Flat Tailings

SAMPLERS (Signature): [signature] Susan Kennedy

STAT. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	8-oz wide-mouth glass jar	1-l poly	TAG #	Analysis TYPE	COMMENTS
RT-SO-1	6/19/85	1510	X		Upgradient Background	1	1		8-26082	Metals/Cyanide	
RT-SO-4	6/19/85	1540	X		SE portion of tailings	1	1		8-26085		
RT-SO-5	6/19/85	1545	X		mid-portion of tailings	1	1		8-26086		
RT-SO-6	6/19/85	1555	X		WSW-portion of tailings	1	1		8-26087		
RT-SO-7	6/19/85	1630	X		Mid-upper tailings	1	1		8-26097		
RT-SW-1	6/20/85	1055		X	Upstream Background Silver Creek	2		2	8-26116, 8-26118	Metals, Sulfate	
RT-SW-2	6/20/85	1245		X	Silver Creek by RR track	2		2	8-26119, 8-26121		
RT-SW-3	6/20/85	1110		X	Keetley Junction Trussel	2		2	8-26122, 8-26063		
RT-SW-4	6/20/85	1025		X	SE Tailings; Intermittent Stream	2		2	8-26064, 8-26066		
RT-SW-5	6/20/85	1220		X	Int. Stream; 60' S of dike road	2		2	8-26067, 8-26069		
RT-SW-6	6/20/85	1240		X	Int. Stream; @ culvert	6		6	8-26070, 8-26076, 8-26079, 8-26072, 8-26078, 8-26081		triple volume for lab QC

Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	Received by: (Signature)
Susan C. Kennedy	6/20/85 1500				
Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	Received by: (Signature)
Relinquished by: (Signature)	Date/Time	Received for Laboratory by: (Signature)	Date/Time	Remarks	
		[signature]	6/21/85 0930		

Distribution: Original Accompanies Shipment; First Copy to Coordinator Field Files; Second Copy to Representative of Inspected Facility

Split Samples: ☐ Accepted ☐ Declined Signature

Received by Federal Express on 6/21/85 — Opened chest 6/21/85 Seals Intact

37980

8-2047

ENVIRONMENTAL PROTECTION AGENCY
REGION VIII, DENVER, COLORADO

RT-1

LABORATORY SERVICES REQUEST

PROJECT NAME Richardson Flat Tailings PROJECT CODE R8-8505-27 SAMPLES COLL. BY S. Kennedy DATE 6/20/85

SAMPLES RECEIVED AT LABORATORY BY _____ DATE _____ DATA REVIEWED BY _____

ANALYST INITIALS	STATION CODE							RT-SW-1		RTSW-2		RT-SW-3		RT-SW-4
	SAMPLE COLL. TIME							1055		1245		1110		1025
	STATION DESCRIPTION AND REMARKS		GW-1 Background well #1		GW-2 well #2		GW-3 well #3	SW-1 Background Silver Creek 6-20-85		SW-2 mid-Silver Creek 6-20-85		SW-3 drum gradient Silver Creek 6-20-85		SW-4 SE Tailings 6-20-85
	CODE	PARAMETER							Total Dissolved*		Total Dissolved*		Total Dissolved*		Total Dissolved*
	1-2 poly (nitric)	TASK 1&2 METALS		Dissolved		Dissolved		Dissolved							
		Aluminum	✓		✓		✓		✓	172	✓	77	✓	370	✓	450
		Antimony	✓		✓		✓		✓	21	✓	15	✓	35	✓	19
		Arsenic	✓		✓		✓		✓	14	✓	11	✓	65	✓	33
		Barium	✓		✓		✓		✓	36	✓	41	✓	53	✓	119
		Beryllium	✓		✓		✓		✓	<10	✓	<10	✓	<10	✓	<10
		Cadmium	✓		✓		✓		✓	<5	✓	<5	✓	<5	✓	<5
		Calcium	✓		✓		✓		✓	137000	✓	119000	✓	124000	✓	128000
		Chromium	✓		✓		✓		✓	<5	✓	<5	✓	<5	✓	<5
		Cobalt	✓		✓		✓		✓	<5	✓	<5	✓	<5	✓	<5
		Copper	✓		✓		✓		✓	12	✓	9	✓	60	✓	18
		Iron	✓		✓		✓		✓	725	✓	389	✓	2290	✓	1570
		Lead	✓		✓		✓		✓	147	✓	93	✓	1985	✓	237
		Magnesium	✓		✓		✓		✓	22200	✓	24000	✓	26000	✓	35400
		Manganese	✓		✓		✓		✓	764	✓	434	✓	727	✓	602
		Mercury	✓		✓		✓		✓	0.2	✓	0.1	✓	0.57	✓	0.1

* results in mg/l unless otherwise indicated, heavy metals in ug/l, pH in units, turbidity in JTU, specific conductance in µmhos/cm, as per STORET.

★ GPO: 1979-680-570

RBEPA-012 (Rev. 11-82)

pH:	7.33	7.54	7.47	7.32
Temp: °C	21	21	19	20
	600	600	550	700

ENVIRONMENTAL PROTECTION AGENCY
REGION VIII, DENVER, COLORADO

RT-2

LABORATORY SERVICES REQUEST

PROJECT NAME Richardson Flat Tailings PROJECT CODE R8-8505-27 SAMPLES COLL. BY S Kennedy DATE 6/20/85

SAMPLES RECEIVED AT LABORATORY BY _____ DATE _____ DATA REVIEWED BY _____

	STATION CODE							RT-SW-1		RT-SW-2		RT-SW-3		RT-SW-4
	SAMPLE COLL. TIME							1055		1245		1110		1025
	STATION DESCRIPTION		GW-1		GW-2		GW-3	SW-1		SW-2		SW-3		SW-4
	AND REMARKS Station Numbers on Container tops for SW-2 & SW-5 are opposite description on tags. "Q4" date indicate, suggest tag reversal. M.W. Lammering		Background Well #1 SK		Well #2 SK		Well #3 SK	Background Silver Creek 6-20-85		Mid-Silver Creek 6-20-85		down-gradient Silver Creek 6-20-85		SE Tailings 6-20-85
	CODE	PARAMETER		Dissolved		Dissolved		Dissolved	Total ~~Dissolved~~	SK	Total ~~Dissolved~~	SK	Total ~~Dissolved~~	SK	Total ~~Dissolved~~
	1L-poly (H2O)	Nickel	✓		✓		✓	✓	<30	✓	<30	✓	<30	✓	<30
		Potassium	✓		✓		✓	✓		✓		✓		✓	
		Selenium	✓		✓		✓	✓	<5	✓	<5	✓	<5	✓	<5
		Silver	✓		✓		✓	✓	<5	✓	<5	✓	<5	✓	<5
		Sodium	✓		✓		✓	✓	31700	✓	25600	✓	25200	✓	36500
		Thallium	✓		✓		✓	✓	<100	✓	<100	✓	<100	✓	<100
		Tin	✓		✓		✓	✓		✓		✓		✓	
		Vanadium	✓		✓		✓	✓	<10	✓	<10		<10		<10
		Zinc	✓		✓		✓		2690		1650		2730		350
		TASK 3 METAL													
		Cyanide	✓		✓		✓	✓		X DAH		X DAH		X DAH	
		SPECIAL ANION													
		Sulfate	✓		✓		✓	✓	284	✓	963	✓	210	✓	218
		Chloride							47		27		28		50

results in mg/l unless otherwise indicated, heavy metals in ug/l, pH in units, turbidity in JTU, specific conductance in µ mhos/cm, as per STORET.

★ GPO: 1979-680-570

R8EPA-012 (Rev. 11-82)

pH:	7.33	7.54	7.47	7.26
Temp: °C	21	21	19	20
Cond: µmhos/cm	600	600	550	700

ENVIRONMENTAL PROTECTION AGENCY
REGION VIII, DENVER, COLORADO

LABORATORY SERVICES REQUEST

RT-4
6/19/85

PROJECT NAME Richardson Flat Tailings PROJECT CODE R8-8505-27 SAMPLES COLL. BY S Kennedy DATE 6/20/85

SAMPLES RECEIVED AT LABORATORY BY _____ DATE _____ DATA REVIEWED BY _____

ANALYST INITIALS	STATION CODE		RT-SW-5		RT-SW-6		RT-SO-1							RT-SO-4		RT-SO-5	
	SAMPLE COLL. TIME		1220		1240									1540		1545	
	STATION DESCRIPTION AND REMARKS		SW-5 mid-tailings 6-20-85		SW-6 down-gradient tailings 6-20-85		SO-1 background soil 6-19-85		SO-2 downgradient soil (E)		SO-3 downgradient soil (W)			SO-4 SE tailings 6-19-85		SO-5 mid-tailings 6-19-85	
	CODE	PARAMETER		Total		Total											
		Nickel	✓	<30	✓	<30	✓		✓		✓			✓		✓	
		Potassium	✓		✓		✓		✓		✓			✓		✓	
		Selenium	✓	<5	✓	<5	✓		✓		✓			✓		✓	
		Silver	✓	<5	✓	<5	✓		✓		✓			✓		✓	
		Sodium	✓	29000	✓	37300	✓		✓		✓			✓		✓	
		Thallium	✓	<100	✓	<100	✓		✓		✓			✓		✓	
		Tin	✓		✓		✓		✓		✓			✓		✓	
		Vanadium	✓	<10	✓	<10	✓		✓		✓			✓		✓	
		Zinc	✓	1410	✓	812	✓		✓		✓			✓		✓	
		TASK 3 METAL															
		Cyanide	✗		✗		✓		✓		✓			✓		✓	
		SPECIAL ANION															
		Sulfate	✓	222	✓	909											
		Chloride		40		33											

Results in mg/l unless otherwise indicated, heavy metals in ug/l, pH in units, turbidity in JTU, specific conductance in µ mhos/cm, as per STORET.

★ GPO: 1979-680-570

R8EPA-012
(Rev. 11-82)

pH:	7.40	7.40
Temp:	21	21
Cond:	1200	1400

ENVIRONMENTAL PROTECTION AGENCY
REGION VIII, DENVER, COLORADO

RT-2

LABORATORY SERVICES REQUEST

PROJECT NAME Richardson Flat Tailings PROJECT CODE R8-8505-27 SAMPLES COLL. BY S Kennedy DATE 6/20/85

SAMPLES RECEIVED AT LABORATORY BY _____ DATE _____ DATA REVIEWED BY _____

	STATION CODE							RT-SW-1		RT-SW-2		RT-SW-3		RT-SW-4
	SAMPLE COLL. TIME							1055		1245		1110		1025
	STATION DESCRIPTION * Note!!	GW-1		GW-2		GW-3		SW-1		SW-2		SW-3		SW-4
	AND REMARKS Station Numbers on Cordanier tops for SW-2 & SW-5 are opposite designation on tags. ** data indicate, suggest tag reversal. M.W. Lamoreux	Background well #1 Sb		Well #2 Sb		Well #3 Sb		Background Silver Creek 6-20-85		Mid-Silver Creek 6-20-85		down-gradient Silver Creek 6-20-85		SE Tailings 6-20-85
AMALYST INITIALS	CODE	PARAMETER		Dissolved		Dissolved		Dissolved		Total Dissolved	SK	Total Dissolved	SK	Total Dissolved	SK	Total Dissolved
	12-poly (H_2O)	Nickel	✓		✓		✓		✓	<30	✓	<30	✓	<30	✓	<30
		Potassium	✓		✓		✓		✓		✓		✓		✓	
		Selenium	✓		✓		✓		✓	<5	✓	<5	✓	<5	✓	<5
		Silver	✓		✓		✓		✓	<5	✓	<5	✓	<5	✓	<5
		Sodium	✓		✓		✓		✓	31700	✓	25600	✓	25200	✓	36500
		Thallium	✓		✓		✓		✓	<100	✓	<100	✓	<100	✓	<100
		Tin	✓		✓		✓		✓		✓		✓		✓	
		Vanadium	✓		✓		✓		✓	<10	✓	<10		<10		<10
		Zinc	✓		✓		✓			2690		1650		2730		350
		TASK 3 METAL														
		Cyanide	✓		✓		✓		✓		X	DNH	X	DNH	X	DNH
		SPECIAL ANION														
		Sulfate	✓		✓		✓		✓	284	✓	~~963~~ 222*	✓	210	✓	218
		Chloride								47		27		28		50

Results in mg/l unless otherwise indicated, heavy metals in ug/l, pH in units, turbidity in JTU, specific conductance in µmhos/cm, as per STORET.

* GPO: 1979-680-570

R8EPA-012 (Rev. 11-82)

pH:	7.33	7.54	7.47	7.26
Temp: °C	21	21	19	20
	600	600	550	700

ENVIRONMENTAL PROTECTION AGENCY
REGION VIII, DENVER, COLORADO

LABORATORY SERVICES REQUEST

RT-3

PROJECT NAME Richardson Flat Tailings PROJECT CODE R8-8505-27 SAMPLES COLL. BY S. Kennedy DATE 6/19/85 6/20/85

SAMPLES RECEIVED AT LABORATORY BY _____ DATE _____ DATA REVIEWED BY _____

ANALYST INITIALS	STATION CODE		RT-SW-5	RT-SW-6	RT-SO-1			RT-SO-4	RT-SO-5
	SAMPLE COLL. TIME		1220	1240	1510			1540	1545
	STATION DESCRIPTION AND REMARKS		SW-5 mid-tailings 6-20-85	SW-6 downgradient tailings 6-20-85	SO-1 background soil 6-19-85	SO-2 downgradient soil (E)	SO-3 downgradient soil (W)	SO-4 SE Tailings	SO-5 mid-tailings
	CODE	PARAMETER							
	1-l poly (water)	TASK 1&2 METALS	Total	Total					
		Aluminum	✓ <30	✓ 35	✓	✓	✓	✓	✓
	8-oz jar (Soil)	Antimony	✓ 13	✓ 7	✓	✓	✓	✓	✓
		Arsenic	✓ 27	✓ 12	✓	✓	✓	✓	✓
		Barium	✓ 26	✓ 27	✓	✓	✓	✓	✓
		Beryllium	✓ <10	✓ <10	✓	✓	✓	✓	✓
		Cadmium	✓ <5	✓ <5	✓	✓	✓	✓	✓
		Calcium	✓ 252000	✓ 287000	✓	✓	✓	✓	✓
		Chromium	✓ <5	✓ <5	✓	✓	✓	✓	✓
		Cobalt	✓ <5	✓ <5	✓	✓	✓	✓	✓
		Copper	✓ <5	✓ <5	✓	✓	✓	✓	✓
		Iron	✓ 507	✓ 215	✓	✓	✓	✓	✓
		Lead	✓ 42	✓ <30	✓	✓	✓	✓	✓
		Magnesium	✓ 55400	✓ 59200	✓	✓	✓	✓	✓
		Manganese	✓ 1654	✓ 2566	✓	✓	✓	✓	✓
		Mercury	✓ <0.1	✓ <0.1	✓	✓	✓	✓	✓

esults in mg/l unless otherwise indicated, heavy metals in ug/l, pH in units, turbidity in JTU, specific conductance in µ mhos/cm, as per STORET.

★ GPO: 1979-680-570

R8EPA-012 (Rev. 11-82)

pH:	7.40	7.40
Temp: °C	21	21
Cond: µmhos/cm²	1200	1400

ENVIRONMENTAL PRO' ION AGENCY
REGION VIII, DENVER, COLORADO

LABORATORY SERVICES REQUEST

RT-4
6/19/85

PROJECT NAME Richardson Flat Tailings PROJECT CODE R8-8505-27 SAMPLES COLL. BY S Kennedy DATE 6/20/85

SAMPLES RECEIVED AT LABORATORY BY _____ DATE _____ DATA REVIEWED BY _____

ANALYST INITIALS	STATION CODE		RT-SW-5	RT-SW-6	RT-SO-1			RT-SO-4	RT-SO-5
	SAMPLE COLL. TIME		1220	1240				1540	1545
	STATION DESCRIPTION AND REMARKS		SW-5 mid-tailings 6-20-85	SW-6 down-gradient tailings 6-20-85	SO-1 background soil 6-19-85	SO-2 downgradient soil (E)	SO-3 downgradient soil (W)	SO-4 SE Tailings 6-19-85	SO-5 mid-tailings 6-19-85
	CODE	PARAMETER	Total	Total					
		Nickel	✓ 230	✓ 230	✓	✓	✓	✓	✓
		Potassium	✓	✓	✓	✓	✓	✓	✓
		Selenium	✓ 25	✓ 25	✓	✓	✓	✓	✓
		Silver	✓ 25	✓ 25	✓	✓	✓	✓	✓
		Sodium	✓ 29000	✓ 37300	✓	✓	✓	✓	✓
		Thallium	✓ 2100	✓ 2100	✓	✓	✓	✓	✓
		Tin	✓	✓	✓	✓	✓	✓	✓
		Vanadium	✓ 210	✓ 210	✓	✓	✓	✓	✓
		Zinc	✓ 1410	✓ 812	✓	✓	✓	✓	✓
		TASK 3 METAL							
		Cyanide	~~✓ 10~~	~~✓ 10~~	✓	✓	✓	✓	✓
		SPECIAL ANION							
		Sulfate	✓ ~~222~~ 963 *	✓ 909					
		Chloride	40	33					

results in mg/l unless otherwise indicated, heavy metals in ug/l, pH in units, turbidity in JTU, specific conductance in µ mhos/cm, as per STORET.

★ GPO: 1979-680-570

RBEPA-012
(Rev. 11-82)

pH: 7.40 7.40
Temp: 21 21