
COVER SHEET - FACSIMILE TRANSMISSION

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MESSAGE:

Attached are 1990 and 1994 theoretical SO₂ emission calculations your mill lab had prepared. Note that this '94 calculation misses December, but I am sure the whole year was later completed. That would give the 41.4 ton/day emission rate used in the last round of modelling runs.

Also attached is the results from the final bit of modelling work that I had HUM Scientific complete. The base case uses the 41.4 rate. 1% exceedance probability means that 1% of the time, the NWT Hourly SO₂ Standard of 450 µg/m³ would be exceeded. These are the conditions that I presently measure at City Hall. Raising the stack to 275 feet would move this line back to roughly the mine property. Note that the map does not extend north, this is because the model is not calibrated to account for the influence of Great Slave Lake in that direction.

Jim

ROYAL OAK MINES Inc.**NWT Division - Giant Mine****Theoretical SO₂ Emissions - 1994****Revised Dec 19/94**

Month	Roaster Feed			Roaster Calcine			Tons S Emmitted	Tons SO ₂ Emmitted	Tons SO ₂ Emmitted /day
	Tons	Grade %S	Tons S	Tons	Grade %S	Tons S			
Jan	4,366	17.13	747.7	3,717	2.96	110.0	637.7	1,275	41.1
Feb	4,126	17.08	704.7	3,807	3.10	118.0	588.7	1,173	41.9
Mar	4,476	16.24	726.9	4,213	3.10	130.8	698.3	1,193	38.5
Apr	4,152	16.44	682.6	3,663	3.16	115.8	566.8	1,134	37.8
May	4,649	17.18	798.7	3,749	3.38	126.7	672.0	1,344	43.4
Jun	4,576	16.30	745.9	4,168	2.84	118.4	627.5	1,255	41.8
Jul	4,226	16.86	669.8	3,828	2.66	101.8	598.0	1,136	36.6
Aug	4,675	16.39	766.2	4,260	2.56	108.8	657.4	1,315	42.4
Sep	4,360	17.08	744.7	3,538	2.85	100.8	643.9	1,288	42.9
Oct	4,581	16.91	771.2	3,815	2.70	103.0	668.3	1,337	43.1
Nov	3,863	17.39	671.8	3,350	3.30	110.8	561.2	1,122	37.4
Dec									
							YTD	13,872	40.6

Notes: Roaster calcine tons include HCD tons

It is assumed that the S grade of the HCD is the same as the calcine
and that the BHD has no sulphur

The tonnage numbers are reconciled as per the monthend reports

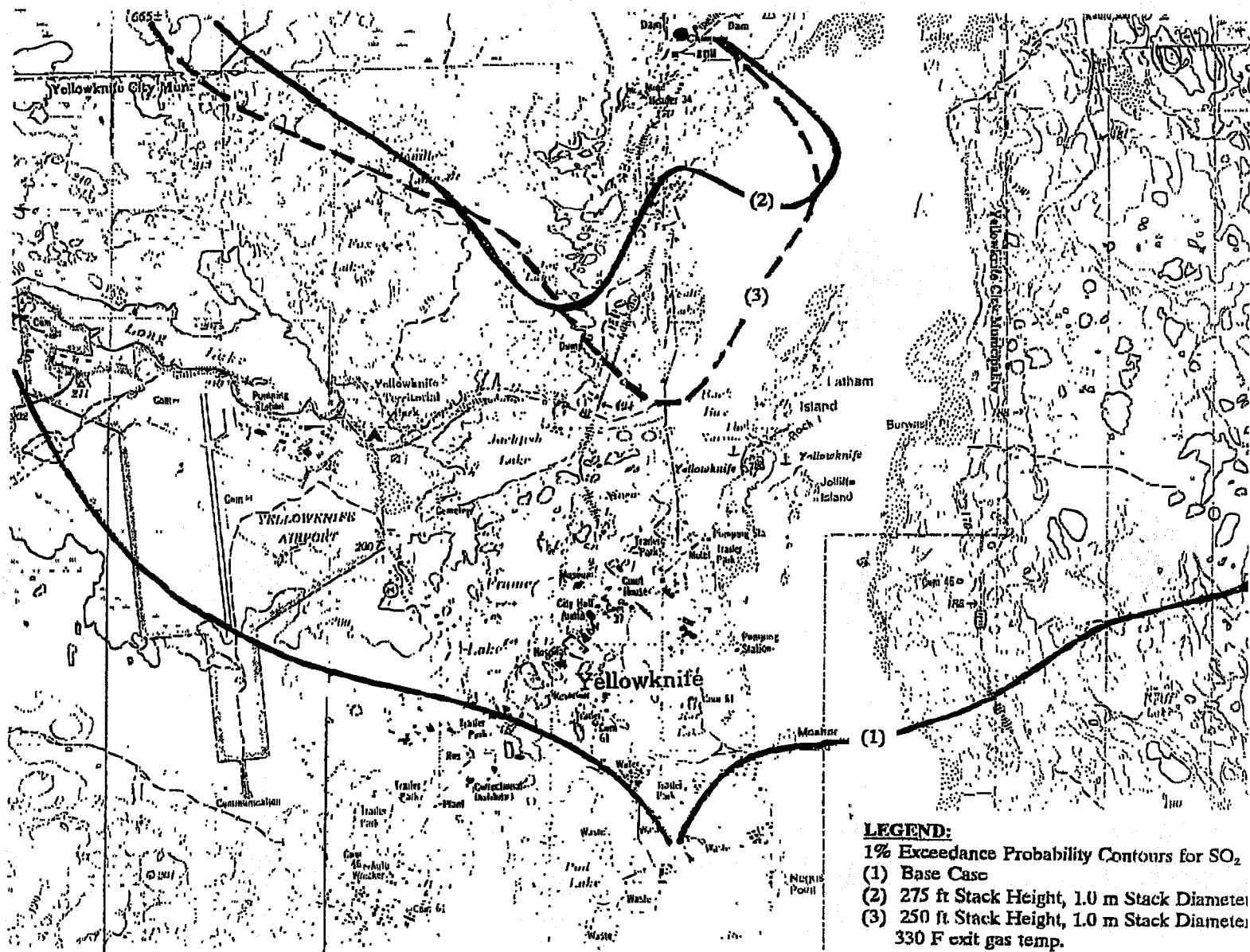
ROYAL OAK MINES Inc.**NWT Division - Giant Mine****Theoretical SO₂ Emissions - 1990**

Month	Roaster Feed			Roaster Calcine			Tons S Emmitted	Tons SO ₂ Emmitted	Tons SO ₂ Emmitted /day
	Tons	Grade %S	Tons S	Tons	Grade %S	Tons S			
Jan	3,933	18.50	727.6	3,720	3.48	129.5	588.2	1,196	38.6
Feb	3,572	17.76	634.4	3,411	3.38	115.3	519.1	1,038	37.1
Mar	3,446	18.49	637.2	3,308	3.23	108.8	530.4	1,061	34.2
Apr	3,982	19.80	788.4	3,701	3.88	143.5	644.8	1,290	43.0
May	3,418	18.86	644.7	3,414	3.11	106.2	538.5	1,077	34.7
Jun	3,420	18.37	628.2	3,367	2.97	99.7	528.5	1,057	35.2
Jul	3,959	19.69	779.6	3,791	3.42	128.8	649.9	1,300	41.9
Aug	3,828	18.48	728.9	3,650	3.27	119.4	608.6	1,219	39.1
Sep	3,772	18.05	680.9	3,229	3.16	102.0	578.9	1,158	36.6
Oct	3,835	18.32	702.6	3,596	3.33	119.8	582.8	1,168	37.6
Nov	3,412	19.62	669.6	3,084	4.42	136.7	532.7	1,066	36.6
Dec	3,811	19.34	737.0	3,440	4.12	141.7	595.3	1,191	38.4
							YTD	13,812	37.8

Notes: Roaster calcine tons include HCD tons

It is assumed that the S grade of the HCD is the same as the calcine
and that the BHD has no sulphur

The tonnage numbers are reconciled as per the monthend reports



HUM Scientific
 Environmental Science & Engineering

Figure Title: 1% Exceedance Probability Contours for SO₂

Date: January 25, 1996

Figure No.: 1

03/12 11:05			5584	AU RX	ECM	13	OK	06'09
03/12 11:29	COLOMAC		0319	TRANSMIT	G3	4	OK	02'21
		920 2133						
03/12 12:00	COLOMAC		0320	TRANSMIT	G3	2	OK	01'14
		920 2133						
03/12 12:32	TIMINS H/R		0321	TRANSMIT	G3	4	OK	01'31
	1 705 235 8232							