60001871

Mining District File Summary Sheet

| | |
|---|---|
| DISTRICT | Rosebud |
| DIST_NO | 4010 |
| COUNTY<br>If different from written on document | Pershing |
| TITLE<br>If not obvious | Rosebud - RMI Sensitivity Analysis - Winters 619 Run at 50% Window |
| AUTHOR | Muerhoff C; Earnest D; Ristorcelli S |
| DATE OF DOC(S) | 1995 |
| MULTI_DIST Y / N?<br>Additional Dist_Nos: | |
| QUAD_NAME | Sulphur 7½' |
| P_M_C_NAME<br>(mine, claim & company names) | Rosebud Mine; Mine Development Associates |
| COMMODITY<br>If not obvious | gold; silver |
| NOTES | correspondence; handwritten notes; sensitivity analysis; statistics<br><br>10p. |

Keep docs at about 250 pages if no oversized maps attached
(for every 1 oversized page (>11x17) with text reduce
the amount of pages by ~25)

SS: DP 8/1/08
Initials Date

DB:
Initials Date

SCANNED:
Initials Date

Revised: 1/22/08

WINTERS 619 RUN @ 50% WINDOW

6000 1871 4010

619 @ 50%

2. designates the # & % of blocks in which no composites are within ±50% of the block grade

6000183 4010

Post-it® Fax Note 7671 Date 7/6 # of pages ▸ 3
To Charlie From S. Ristorcelli
Co./Dept. LIDA Co. HECLA
Phone # Phone #
Fax # 420-0081 Fax #

** CP4 STATISTICS FROM 3-D MODEL FILE ROSE15.DAT **
Statistical Analysis of MODEL grades based on CP1

| CUTOFF CP1 | SAMPLES ABOVE | PERCENT ABOVE | MEAN ABOVE | C.V. |
|---|---|---|---|---|
| 0.000 | 53530.5 | 100.0 | 1.011 | 0.19 |
| 1.000 | 52843.9 | 98.7 | 1.025 | 0.15 |
| 2.000 | 1300.5 | 2.4 | 2.000 | 0.08 |

MIN. data VALUE = 0.0000
MAX. data VALUE = 2.0000

C.V. = Coeff. of variation = Standard deviation / Mean

07-06-95 07:33:01

** CP4 STATISTICS FROM 3-D MODEL FILE ROSE15.DAT **
Statistical Analysis of MODEL grades based on CP2

| CUTOFF CP2 | SAMPLES ABOVE | PERCENT ABOVE | MEAN ABOVE | C.V. |
|---|---|---|---|---|
| 0.000 | 12770.5 | 100.0 | 1.020 | 0.17 |
| 1.000 | 12704.4 | 99.5 | 1.025 | 0.15 |
| 2.000 | 319.7 | 2.5 | 2.000 | 0.08 |

MIN. data VALUE = 0.0000
MAX. data VALUE = 2.0000

C.V. = Coeff. of variation = Standard deviation / Mean

07-06-95 07:44:34

** CP4 STATISTICS FROM 3-D MODEL FILE ROSE15.DAT **
Statistical Analysis of MODEL grades based on CP3

| CUTOFF CP3 | SAMPLES ABOVE | PERCENT ABOVE | MEAN ABOVE | C.V. |
|---|---|---|---|---|
| 0.000 | 4018.2 | 100.0 | 0.976 | 0.19 |
| 1.000 | 3896.2 | 97.0 | 1.006 | 0.08 |
| 2.000 | 24.5 | 0.6 | 2.000 | 0.04 |

MIN. data VALUE = 0.0000
MAX. data VALUE = 2.0000

C.V. = Coeff. of variation = Standard deviation / Mean

07-06-95 07:56:16

** CP4 STATISTICS FROM 3-D MODEL FILE ROSE15.DAT **
Statistical Analysis of MODEL grades based on CP4

| CUTOFF CP4 | SAMPLES ABOVE | PERCENT ABOVE | MEAN ABOVE | C.V. |
|---|---|---|---|---|
| 0.000 | 3175.2 | 100.0 | 1.006 | 0.27 |
| 1.000 | 3065.9 | 96.6 | 1.042 | 0.19 |
| 2.000 | 128.4 | 4.0 | 2.000 | 0.10 |

MIN. data VALUE = 0.0000

Can we determine the grade of these blocks.

MAX. data VALUE = 2.0000

C.V. = Coeff. of variation = Standard deviation / Mean

07-06-95 08:07:58

** CP4 STATISTICS FROM 3-D MODEL FILE ROSE15.DAT **

Statistical Analysis of MODEL grades based on CP5

| CUTOFF CP5 | SAMPLES ABOVE | PERCENT ABOVE | MEAN ABOVE | C.V. |
|---|---|---|---|---|
| 0.000 | 81910.1 | 100.0 | 0.996 | 0.12 |
| 1.000 | 81209.1 | 99.1 | 1.005 | 0.07 |
| 2.000 | 384.8 | 0.5 | 2.000 | 0.00 |

MIN. data VALUE = 0.0000

MAX. data VALUE = 2.0000

C.V. = Coeff. of variation = Standard deviation / Mean

07-06-95 08:19:48

** CP4 STATISTICS FROM 3-D MODEL FILE ROSE15.DAT **

Statistical Analysis of MODEL grades based on CP6

| CUTOFF CP6 | SAMPLES ABOVE | PERCENT ABOVE | MEAN ABOVE | C.V. |
|---|---|---|---|---|
| 0.000 | 9315.0 | 100.0 | 1.008 | 0.35 |
| 1.000 | 8784.8 | 94.3 | 1.069 | 0.24 |
| 2.000 | 603.8 | 6.5 | 2.000 | 0.13 |

MIN. data VALUE = 0.0000

MAX. data VALUE = 2.0000

C.V. = Coeff. of variation = Standard deviation / Mean

07-06-95 08:31:32

** CP4 STATISTICS FROM 3-D MODEL FILE ROSE15.DAT **

Statistical Analysis of MODEL grades based on CP7

| CUTOFF CP7 | SAMPLES ABOVE | PERCENT ABOVE | MEAN ABOVE | C.V. |
|---|---|---|---|---|
| 0.000 | 1492.8 | 100.0 | 0.955 | 0.23 |
| 1.000 | 1422.7 | 95.3 | 1.002 | 0.04 |
| 2.000 | 2.7 | 0.2 | 2.000 | 0.02 |

MIN. data VALUE = 0.0000

MAX. data VALUE = 2.0000

C.V. = Coeff. of variation = Standard deviation / Mean

07-06-95 08:43:21

** CP4 STATISTICS FROM 3-D MODEL FILE ROSE15.DAT **

Statistical Analysis of MODEL grades based on CP8

| CUTOFF CP8 | SAMPLES ABOVE | PERCENT ABOVE | MEAN ABOVE | C.V. |
|---|---|---|---|---|
| 0.000 | 1072.7 | 100.0 | 0.919 | 0.30 |

| | | | | |
|---|---|---|---|---|
| 1.000 | 984.9 | 91.6 | 1.001 | 0.03 |
| 2.000 | 1.0 | 0.1 | 2.000 | 0.00 |

MIN. data VALUE = 0.0000
MAX. data VALUE = 2.0000

C.V. = Coeff. of variation = Standard deviation / Mean

Charlie, July 6, 1995

Here's a floppy copy of the 603 printout/dump. It has all the blocks that were flagged in Sim's version of 619. As I interpret it, these are all the blocks that do not have any composite values within a 50% window of the estimated grade of the block. You have two files: one is the IJK model dump and one is a Surpac OBS file transformed to real coordinates. I would suggest, given time and opportunity, that you review these on the plan maps. Just print out a hard copy as it is in ASQII format.

On another subject, I have been talking with Don Earnest of Winters. I have offered him all the support for our meeting next Thursday. He followed up with the fact that he wants only to be reassured that the high-high-grade blocks in zone 4 are justified. Otherwise, he really has no problem with the estimate. He wants to know that you have reviewed the high-grade block distribution. He has no problems with the zone boundaries or the other zones as presently defined. I will continue to speak with Rick as the week progresses. They have suggested that we (they and me) get together the evening before in Reno or Lovelock. We all want to leave Rosebud with your management confident in the Rosebud resource estimate or if there are any qualms, they will be addressed and defined.

Buena suerte y nos vemos pronto.

**MINE DEVELOPMENT ASSOCIATES**
MINE ENGINEERING SERVICES
SURPAC MINING SYSTEMS

**DATE:** June 27, 1995
**TO:** Charlie Muerhoff
**FAX:** 702-427-7781
**FROM:** Steven Ristorcelli

**THIS TRANSMISSION CONSISTS OF _7_ PAGES INCLUDING THIS COVER PAGE.**
**IF ALL PAGES ARE NOT RECEIVED, PHONE (702) 856-5700.**
**FAX NUMBER: (702) 856-6053**

Hi Charlie,

Here are the results from the 619 runs for the 10% and 25% windows. If you are interested I can still send the 50% window results tommorrow if you are interested. Remember, much to everybody's suprize, including Mintec, these are blocks flagged for when any one or more composites used to estimate a block are outside the tolerance window of the estimted block grade.

Mintec is in the process of changing 619 to meet our needs and it could be done as soon as tommorrow. I'll keep you informed on that.

TWC says "these blocks are flagged for when there is not a single composite within the window of the estimated block grade"

25% WINDOW 1/3

06-27-95 08:07:03

** CP4 STATISTICS FROM 3-D MODEL FILE ROSE15.DAT **

Statistical Analysis of MODEL grades based on CP1

| CUTOFF CP1 | SAMPLES ABOVE | PERCENT ABOVE | MEAN ABOVE | C.V. |
|---|---|---|---|---|
| 0.000 | 53530.0 | 100.0 | 1.165 | 0.34 |
| 1.000 | 53028.5 | 99.1 | 1.176 | 0.32 |
| 2.000 | 9352.8 | 17.5 | 2.000 | 0.19 |

MIN. data VALUE = 0.0000
MAX. data VALUE = 2.0000

C.V. = Coeff. of variation = Standard deviation / Mean

06-27-95 08:18:44

** CP4 STATISTICS FROM 3-D MODEL FILE ROSE15.DAT **

Statistical Analysis of MODEL grades based on CP2

| CUTOFF CP2 | SAMPLES ABOVE | PERCENT ABOVE | MEAN ABOVE | C.V. |
|---|---|---|---|---|
| 0.000 | 12770.5 | 100.0 | 1.163 | 0.33 |
| 1.000 | 12704.4 | 99.5 | 1.169 | 0.32 |
| 2.000 | 2141.4 | 16.8 | 2.000 | 0.19 |

MIN. data VALUE = 0.0000
MAX. data VALUE = 2.0000

C.V. = Coeff. of variation = Standard deviation / Mean

06-27-95 08:30:33

** CP4 STATISTICS FROM 3-D MODEL FILE ROSE15.DAT **

Statistical Analysis of MODEL grades based on CP3

| CUTOFF CP3 | SAMPLES ABOVE | PERCENT ABOVE | MEAN ABOVE | C.V. |
|---|---|---|---|---|
| 0.000 | 4018.2 | 100.0 | 1.113 | 0.30 |
| 1.000 | 3992.7 | 99.4 | 1.120 | 0.29 |
| 2.000 | 477.6 | 11.9 | 2.000 | 0.16 |

MIN. data VALUE = 0.0000
MAX. data VALUE = 2.0000

C.V. = Coeff. of variation = Standard deviation / Mean

06-27-95 08:42:05

** CP4 STATISTICS FROM 3-D MODEL FILE ROSE15.DAT **

Statistical Analysis of MODEL grades based on CP4

| CUTOFF CP4 | SAMPLES ABOVE | PERCENT ABOVE | MEAN ABOVE | C.V. |
|---|---|---|---|---|
| 0.000 | 3175.2 | 100.0 | 1.171 | 0.37 |
| 1.000 | 3094.6 | 97.5 | 1.202 | 0.33 |
| 2.000 | 624.0 | 19.7 | 2.000 | 0.20 |

MIN. data VALUE = 0.0000

25% window 1/3

MAX. data VALUE = 2.0000

C.V. = Coeff. of variation = Standard deviation / Mean

06-27-95 08:53:28

** CP4 STATISTICS FROM 3-D MODEL FILE ROSE15.DAT **

Statistical Analysis of MODEL grades based on CP5

| CUTOFF CP5 | SAMPLES ABOVE | PERCENT ABOVE | MEAN ABOVE | C.V. |
|---|---|---|---|---|
| 0.000 | 81910.8 | 100.0 | 1.111 | 0.30 |
| 1.000 | 81271.2 | 99.2 | 1.119 | 0.29 |
| 2.000 | 9709.2 | 11.9 | 2.000 | 0.16 |

MIN. data VALUE = 0.0000

MAX. data VALUE = 2.0000

C.V. = Coeff. of variation = Standard deviation / Mean

06-27-95 09:04:58

** CP4 STATISTICS FROM 3-D MODEL FILE ROSE15.DAT **

Statistical Analysis of MODEL grades based on CP6

| CUTOFF CP6 | SAMPLES ABOVE | PERCENT ABOVE | MEAN ABOVE | C.V. |
|---|---|---|---|---|
| 0.000 | 9315.0 | 100.0 | 1.113 | 0.42 |
| 1.000 | 8784.8 | 94.3 | 1.181 | 0.33 |
| 2.000 | 1586.5 | 17.0 | 2.000 | 0.19 |

MIN. data VALUE = 0.0000

MAX. data VALUE = 2.0000

C.V. = Coeff. of variation = Standard deviation / Mean

06-27-95 09:16:39

** CP4 STATISTICS FROM 3-D MODEL FILE ROSE15.DAT **

Statistical Analysis of MODEL grades based on CP7

| CUTOFF CP7 | SAMPLES ABOVE | PERCENT ABOVE | MEAN ABOVE | C.V. |
|---|---|---|---|---|
| 0.000 | 1492.8 | 100.0 | 1.000 | 0.31 |
| 1.000 | 1422.7 | 95.3 | 1.049 | 0.21 |
| 2.000 | 70.4 | 4.7 | 2.000 | 0.11 |

MIN. data VALUE = 0.0000

MAX. data VALUE = 2.0000

C.V. = Coeff. of variation = Standard deviation / Mean

06-27-95 09:28:12

** CP4 STATISTICS FROM 3-D MODEL FILE ROSE15.DAT **

Statistical Analysis of MODEL grades based on CP8

| CUTOFF CP8 | SAMPLES ABOVE | PERCENT ABOVE | MEAN ABOVE | C.V. |
|---|---|---|---|---|
| 0.000 | 1072.7 | 100.0 | 0.996 | 0.40 |

25% window 3/3

| | | | | |
|---|---|---|---|---|
| 1.000 | 984.9 | 91.8 | 1.085 | 0.26 |
| 2.000 | 83.9 | 7.8 | 2.000 | 0.14 |

MIN. data VALUE = 0.0000
MAX. data VALUE = 2.0000

C.V. = Coeff. of variation = Standard deviation / Mean

10% window 1/3

06-27-95 11:25:00

** CP4 STATISTICS FROM 3-D MODEL FILE ROSE15.DAT **

Statistical Analysis of MODEL grades based on CP1

| CUTOFF CP1 | SAMPLES ABOVE | PERCENT ABOVE | MEAN ABOVE | C.V. |
|---|---|---|---|---|
| 0.000 | 53429.5 | 100.0 | 1.533 | 0.34 |
| 1.000 | 53028.0 | 99.1 | 1.537 | 0.32 |
| 2.000 | 28487.2 | 53.2 | 2.000 | 0.25 |

MIN. data VALUE = 0.0000
MAX. data VALUE = 2.0000

C.V. = Coeff. of variation = Standard deviation / Mean

06-27-95 11:27:37

** CP4 STATISTICS FROM 3-D MODEL FILE ROSE15.DAT **

Statistical Analysis of MODEL grades based on CP2

| CUTOFF CP2 | SAMPLES ABOVE | PERCENT ABOVE | MEAN ABOVE | C.V. |
|---|---|---|---|---|
| 0.000 | 12770.5 | 100.0 | 1.444 | 0.35 |
| 1.000 | 12704.5 | 99.5 | 1.451 | 0.34 |
| 2.000 | 5734.9 | 44.9 | 2.000 | 0.25 |

MIN. data VALUE = 0.0000
MAX. data VALUE = 2.0000

C.V. = Coeff. of variation = Standard deviation / Mean

06-27-95 11:40:14

** CP4 STATISTICS FROM 3-D MODEL FILE ROSE15.DAT **

Statistical Analysis of MODEL grades based on CP3

| CUTOFF CP3 | SAMPLES ABOVE | PERCENT ABOVE | MEAN ABOVE | C.V. |
|---|---|---|---|---|
| 0.000 | 4018.2 | 100.0 | 1.376 | 0.36 |
| 1.000 | 3992.7 | 99.4 | 1.385 | 0.35 |
| 2.000 | 1536.1 | 38.2 | 2.000 | 0.24 |

MIN. data VALUE = 0.0000
MAX. data VALUE = 2.0000

C.V. = Coeff. of variation = Standard deviation / Mean

06-27-95 11:51:40

** CP4 STATISTICS FROM 3-D MODEL FILE ROSE15.DAT **

Statistical Analysis of MODEL grades based on CP4

| CUTOFF CP4 | SAMPLES ABOVE | PERCENT ABOVE | MEAN ABOVE | C.V. |
|---|---|---|---|---|
| 0.000 | 3175.2 | 100.0 | 1.502 | 0.37 |
| 1.000 | 3094.6 | 97.5 | 1.542 | 0.32 |
| 2.000 | 1675.9 | 52.8 | 2.000 | 0.25 |

MIN. data VALUE = 0.0000

10% window 2/3

MAX. data VALUE = 2.0000

C.V. = Coeff. of variation = Standard deviation / Mean

06-27-95 12:03:09

** CP4 STATISTICS FROM 3-D MODEL FILE ROSE15.DAT **

Statistical Analysis of MODEL grades based on CP5

| CUTOFF CP5 | SAMPLES ABOVE | PERCENT ABOVE | MEAN ABOVE | C.V. |
|---|---|---|---|---|
| 0.000 | 81910.3 | 100.0 | 1.430 | 0.36 |
| 1.000 | 81270.7 | 99.2 | 1.442 | 0.34 |
| 2.000 | 35894.8 | 43.8 | 2.000 | 0.25 |

MIN. data VALUE = 0.0000

MAX. data VALUE = 2.0000

C.V. = Coeff. of variation = Standard deviation / Mean

06-27-95 12:14:35

** CP4 STATISTICS FROM 3-D MODEL FILE ROSE15.DAT **

Statistical Analysis of MODEL grades based on CP6

| CUTOFF CP6 | SAMPLES ABOVE | PERCENT ABOVE | MEAN ABOVE | C.V. |
|---|---|---|---|---|
| 0.000 | 9315.1 | 100.0 | 1.452 | 0.41 |
| 1.000 | 8784.8 | 94.3 | 1.540 | 0.32 |
| 2.000 | 4743.8 | 50.9 | 2.000 | 0.25 |

MIN. data VALUE = 0.0000

MAX. data VALUE = 2.0000

C.V. = Coeff. of variation = Standard deviation / Mean

06-27-95 12:26:06

** CP4 STATISTICS FROM 3-D MODEL FILE ROSE15.DAT **

Statistical Analysis of MODEL grades based on CP7

| CUTOFF CP7 | SAMPLES ABOVE | PERCENT ABOVE | MEAN ABOVE | C.V. |
|---|---|---|---|---|
| 0.000 | 1492.8 | 100.0 | 1.290 | 0.42 |
| 1.000 | 1422.7 | 95.3 | 1.354 | 0.35 |
| 2.000 | 503.4 | 33.7 | 2.000 | 0.24 |

MIN. data VALUE = 0.0000

MAX. data VALUE = 2.0000

C.V. = Coeff. of variation = Standard deviation / Mean

06-27-95 12:37:32

** CP4 STATISTICS FROM 3-D MODEL FILE ROSE15.DAT **

Statistical Analysis of MODEL grades based on CP8

| CUTOFF CP8 | SAMPLES ABOVE | PERCENT ABOVE | MEAN ABOVE | C.V. |
|---|---|---|---|---|
| 0.000 | 1072.7 | 100.0 | 1.190 | 0.47 |

10% window 3/3

| | | | | |
|---|---|---|---|---|
| 1.000 | 984.9 | 91.8 | 1.296 | 0.35 |
| 2.000 | 291.5 | 27.2 | 2.000 | 0.23 |

MIN. data VALUE = 0.0000
MAX. data VALUE = 2.0000

C.V. = Coeff. of variation = Standard deviation / Mean

06-23-95 23:06:55

** CP4 STATISTICS FROM 3-D MODEL FILE ROSE15.DAT **

Statistical Analysis of MODEL grades based on CP11

| CUTOFF CP11 | SAMPLES ABOVE | PERCENT ABOVE | MEAN ABOVE | C.V. |
|---|---|---|---|---|
| 0.000 | 27066.5 | 100.0 | 0.802 | 0.50 |
| 1.000 | 21718.0 | 80.2 | 1.000 | 0.40 |

MIN. data VALUE = 0.0000
MAX. data VALUE = 1.0000

C.V. = Coeff. of variation = Standard deviation / Mean