

## **Supporting Document B3**

**Tailings Backfill in the Giant Mine  
(SRK, 2002)**

**SUPPORTING DOCUMENT 4b**

**GIANT MINE  
TAILINGS BACKFILL**

## MEMORANDUM

DATE: July 10, 2002

TO: File

FROM: Kelly Sexsmith

**RE: Tailings Backfill in the Giant Mine**

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This memo summarizes the available information on tailings backfill in the Giant Mine. The information was obtained from annual reports dating back to 1954, monthly records from 1944, and the stope records maintained on site. Most of the information was compiled by Manuel Lim of the Giant Mine Project Team (DIAND). The geochemical testing program described in Supporting Document 4 also provides valuable information on the backfilled tailings, and is briefly reviewed.

Annual reports from 1966 to 1978 were initially used to identify stopes that were mined using cut and fill methods. Records prior to this period were not available until after this initial phase of work was completed. The individual stope records (from the black stope books) were then reviewed to determine the location, the approximate period of mining and backfilling, and the total tonnes of ore broken in each stope. The results of the compilation are provided in Table 1. Several of the stope books were missing plans. Therefore, it was not possible to obtain this information for all of the stopes. Where possible, the center point of each stope was then input into Autocad and used to generate a long section of the mine showing the relative locations of all the stopes that are known to contain backfill (Figure 1).

Annual reports from 1954 to 1965 were located by Tim Canam in November 2001, approximately one year following the initial data compilation. The data was compiled in a slightly different format, which includes the amount of ore broken in each stope on an annual basis. This data is provided in Table 2. It should be noted that the records did not always distinguish "cut and fill stopes" from "tailings cut and fill stopes", and that the sum of the amount of ore recorded as being in individual tailings cut and fill stopes was typically much less than the reported total of ore actually broken in the tailings cut and fill stopes. In some cases, the annual reports could be used to determine when piping was extended to an area and to confirm that tailings would have been present in these



stopes. However, many of the stopes identified as “cut and fill” are likely to contain some tailings backfill.

The 1954 to 1965 records from Table 2 were used to identify some additional tailings backfilled stopes, which have been added to Table 1 (shaded). However, the detailed records for these new stopes will need to be reviewed to fill in the more detailed information on the locations and amounts of ore from each of these stopes. Once this information has been compiled, Figure 1 will be updated to include those stopes.

The 1954 to 1965 annual reports also provided some additional information on tailings backfill, including the quantity of ore broken in tailings cut and fill stopes, the tailings backfill placed each year, and general information on changes and improvements to the backfill system. This information was also available for 1966, and 1973 to 1978. This information was used to prepare a summary of the backfill production rates, as shown in Table 3. The records indicate:

- Tailings backfill was used in the mine from 1957 to 1978.
- Approximately 2.5 million tons of backfilled tailings were accounted for in the records. This corresponds closely to the estimate of 2.7 million tonnes provided in the final abandonment and reclamation plan (G. Halverson 1984, *referenced in Golder 2001*).
- There were changes to the plant noted in the annual reports for 1959 (an increase in the storage tank size), 1965 (increase in storage tank size), 1966 (construction of a cement/tailings plant), and 1967 (new tailings/cement plant commissioned).
- The backfill comprised 69 to 84% of the volume of the tailings cut and fill stopes. Mine personnel have indicated that waste rock was periodically used to supplement the tailings backfill.
- There are several cut and fill stopes that may not contain tailings backfill. Former mine personnel have indicated that development waste rock was placed in these stopes. From 1950 to 1957, gravel mixed with development waste was used for backfill.



Results of the geochemical testing program (see Supporting Document 4) have indicated that there are two distinct types of backfilled tailings in the underground workings, including brown tailings with elevated sulphide and metal levels and mineralogically distinct iron oxides from the roasting process, and grey tailings with low sulphide and metal concentrations, and no traces of roaster products. Most of the brown tailings samples were from stopes completed before 1967, and most of the grey tailings samples were from stopes completed after 1967. Approximately 40% of the tailings backfill samples were brown roaster tailings, while approximately 60% were grey flotation tailings.

The presence of roaster products in the older tailings is consistent with a 1960 flowsheet (Tait 1960) which shows blending of calcine residues with the flotation tailings, cyanidation of the blended tailings, and then deposition of the coarse sands to the mine backfill. Monthly reports indicate that, in June 1967, they eliminated the tailings cyanidation circuit, which would mean it would be no longer necessary to blend the calcine residues with the flotation tailings. A former metallurgist with the mine also indicated that the change may have occurred following implementation of a territorial regulation which prohibited deposition of cyanide tailings underground (*pers. comm*, Bryan Cross), which would have necessitated the exclusive use of flotation tailings as backfill. We have not been able to determine the timing of this regulation.

The production records in Table 3 indicate that approximately 50% of the backfill production occurred prior to or during 1967, while 50% occurred after 1967. Therefore, it is reasonable to assume that half of the backfill contains roaster products.



**References:**

Annual Reports (1954 to 1978)

G. Halverson 1984 (complete reference could not be located, cited in Golder, 2001).

Monthly Reports (1944 to 1999).

Stope Books (Geology Vault)

Tait, R.J.C., 1960. Recent Progress in Milling and Gold Extraction at Giant Yellowknife Gold Mines Limited. C.I.M. Annual General Meeting, Toronto, April 1960, and Transactions, Volume LXIV, 1961, pp. 204-216

**Table 1  
Giant Mine Underground Tailings Backfill 1966-1977**

| Stope No.      | Access Level | Northing | Easting | Bottom    | Back(top) | Tons of Ore Broken | Date Stope Started | Last Survey | Comments                       |
|----------------|--------------|----------|---------|-----------|-----------|--------------------|--------------------|-------------|--------------------------------|
|                |              |          |         | Elevation | Elevation |                    |                    |             |                                |
| B3 131         | B3, 1st      | 3225N    | 850W    | 5845      | 5980      | 59,217             | Apr '68            | Apr '74     |                                |
| B3 233         | B3, 1st      | 3300N    | 900W    | 5810      | 5900      | 43,958             | May '67            | Nov '70     |                                |
| B3 237         |              |          |         |           |           | 12,194             |                    |             | MISSING PLANS                  |
| B4 143         | B3, 1st      | 4300N    | 1300W   | 5850      | 5900      | 133,197            | Sep '72            | Jan '74     |                                |
| B4 245         |              |          |         |           |           | 81,571             |                    |             | MISSING PLANS                  |
| B4 245 S       |              |          |         |           |           | 549                |                    |             | MISSING PLANS                  |
| B 205 Pillar   |              |          |         |           |           | 9,467              |                    |             | MISSING PLANS                  |
| 445            |              |          |         |           |           | 53,765             |                    |             | MISSING PLANS                  |
| 450            | 575          | 4800N    | 1300W   | 5460      | 5640      | 97,619             | Jul '71            | Feb '77     |                                |
| 452            |              |          |         |           |           | 5,575              |                    |             | MISSING PLANS                  |
| 464            |              |          |         |           |           | 17,675             |                    |             | MISSING PLANS                  |
| 715            | 750          | 1625N    | 700E    | 5292      | 5340      | 1,986              | Nov '70            | Mar '71     |                                |
| 717            | 750          | 1675N    | 580W    | 5310      | 5440      | 118,260            | Nov '57            | Mar '58     |                                |
| 719            | 750          | 13740N   | 7670E   | 5260      | 5480      | 4,914              | Jul '54            | Feb '60     |                                |
| 723            | 750          | 2100N    | 250W    | 5290      | 5310      | 10,418             | Jun '74            | May '76     |                                |
| 737            | 750          | 3700N    | 240W    | 5265      | 5310      | 3,966              | Feb '64            | Feb '70     |                                |
| 738            | 750          | 3775N    | 250W    | 5330      | 5440      | 35,689             | Dec '73            | Oct '77     |                                |
| 742            | 750          | 2200N    | 600E    | 5270      | 5430      | 114,044            | Nov '67            | Aug '72     |                                |
| 742 #17        | 750          | 2425N    | 550E    | 5200      | 5270      | 2,317              | Dec '66            | Feb '68     |                                |
| 742 H.W.       | 750          | 2100N    | 500E    | 5292      | 5335      | 6,305              | Mar '68            | Apr '68     |                                |
| 742 HW #2      |              |          |         |           |           | 5,213              |                    |             | MISSING PLANS                  |
| 746            | 750          | 4650N    | 1150E   | 5305      | 5345      | 8,401              | Jun '67            | Dec '68     |                                |
| 747            | 750          | 4900N    | 1300W   | 5340      | 5440      | 23,821             | Apr '70            | Feb '72     |                                |
| 748            | 750          | 4850N    | 1160W   | 5310      | 5350      | 5,916              | Jan '69            | OCT '71     |                                |
| 749            | 750          | 4900N    | 1260W   | 5340      | 5380      | 5,273              | Jun '70            | Jan '71     |                                |
| 750 H.W.       | 750          | 5120N    | 1250W   | 5390      | 5570      | 147,299            | Feb '67            | Nov '77     |                                |
| 750 F.W.       | 750          | 4900N    | 1300W   | 5312      | 5442      | 23,122             | Jun '70            | Jan '73     |                                |
| 906            | 950          | 550N     | 850E    | 5060      | 5095      | 14,952             | Aug '71            |             |                                |
| 907            | 950          | 850N     | 850E    | 5180      | 5230      | 75,958             | Feb '72            | Feb '73     |                                |
| 910            | 950          | 1000N    | 50E     | 5080      | 5160      | 46,618             | Dec '64            | Sep '67     |                                |
| 911            | 950          | 1125N    | 70E     | 5030      | 5060      | 2,071              | Jun '72            | Aug '72     |                                |
| 914 H.W.       | 950          | 1575N    | 20W     | 5080      | 5200      | 30,220             | Aug '64            | Mar '68     |                                |
| 914 L.P.       | 950          | 1200N    | 00E     | 5055      | 5130      | 8,280              | Nov '68            | Apr '71     |                                |
| 918 W          |              |          |         |           |           | 13,744             |                    |             | MISSING PLANS                  |
| 918            | 950          | 1800N    | 70W     | 5060      | 5220      | 172,335            | Jul '56            | Oct '65     |                                |
| 918 #7         | 950          | 1675N    | 00E     | 5080      | 5120      | 2,450              | Oct '68            | Feb '69     |                                |
| 919            | 950          | 2000N    | 00E     | 5080      | 5190      | 100,143            | Nov '58            | Apr '63     |                                |
| 920            | 950          | 2000N    | 80W     | 5110      | 5270      | 142,889            | Feb '57            | May '68     |                                |
| 921            |              |          |         |           |           | 112,000            | 1958               | 1964        | MISSING PLANS                  |
| 925            | 950          | 13910N   | 8680E   | 5200      | 5294      | 10,400             | Jun '61            | Mar '63     |                                |
| 89E / 92-93    | 750          | 1800N    | 500E    | 5270      | 5310      | 94,961             | Dec '63            | Oct '68     |                                |
| 94             | 750          | 1800N    | 600E    | 5170      | 5345      | 11,779             | Jun '61            | Mar '71     |                                |
| 95             | 750          | 2025N    | 560E    | 5200      | 5265      | 32,871             | Mar '65            | Feb '67     |                                |
| 96             | 950          | 2200N    | 400E    | 5160      | 5240      | 60,318             | Jan '62            | Nov '68     |                                |
| 97             | 750          | 1950N    | 460E    | 5154      | 5295      | 64,542             | APR '67            |             |                                |
| 98             | 950          | 1850N    | 580E    | 5210      | 5260      | 19,229             | DEC '62            |             |                                |
| 98 E           | 750          | 2300N    | 600E    | 5260      | 5280      | 3,840              | JAN '67            |             |                                |
| 99 N.W.        |              |          |         |           |           | 873                |                    |             | Layout has no survey shown.    |
| 11-10          | 1100         | 1000N    | 80E     | 4920      | 5090      | 66,680             | Jun '60            | Dec'64      |                                |
| 11-10 E&W      |              |          |         |           |           | 30,005             |                    |             | MISSING PLANS                  |
| 11-13          | 1100         | 12920N   | 8060E   | 4985      | 5040      | 3,600              | Dec '65            | May '66     |                                |
| 11-15 E&W      | 1100         | 1500N    | 00E     | 4940      | 5070      | 43,876             | May '62            |             |                                |
| 11-16          | 1100         | 100S     | 750E    | 4900      | 4930      | 13,340             | Jan '83            | Feb '83     | 1983? could be waste fill.     |
| 11-17 E        | 1100         | 1700N    | 300E    | 4900      | 5000      | 82,186             | Apr '68            | Jun '70     |                                |
| 11-17 W        |              |          |         |           |           | 8,987              |                    |             | MISSING PLANS                  |
| 11-18          |              |          |         |           |           | 14,200             | 1960               | 1964        | MISSING PLANS                  |
| 11-20 Cr.      | 950          | 2000N    | 50E     | 5080      | 5100      | 2,033              | Feb '67            | Feb '69     |                                |
| 11-20          | 1150         | 1900N    | 100E    | 4920      | 5080      | 184,982            | Jan '58            | Feb '67     |                                |
| 11-21          | 1100         | 13500N   | 8460E   | 4905      | 5082      | 59,700             | Dec '60            | May '68     |                                |
| 11-22          | 1100         | 1800N    | 300E    | 4910      | 4985      | 17,571             | Feb '73            | Mar '76     |                                |
| 11-81          |              |          |         |           |           | 5,783              |                    |             | No survey shown on the plan    |
| 12-6 & 12-6 LP |              |          |         |           |           | 92,636             |                    |             | MISSING PLANS                  |
| 12-6 N         | 1100         | 500N     | 40E     | 4830      | 4895      | 2,830              | Jul '67            | Nov '68     |                                |
| 12-10          | 1250         | 1050N    | 120E    | 4830      | 4900      | 51,024             | Jul '63            | Sep '66     |                                |
| 12-12          | 1100         | 1100N    | 180E    | 4825      | 4892      | 22,685             | May '65            | Jul '67     |                                |
| 12-13          | 1100         | 1350N    | 175E    | 4840      | 4870      | 20,670             | Feb '66            | Dec '66     |                                |
| 12-13 N        | 1100         | 1400N    | 120E    | 4820      | 4920      | 32,837             | Mar '66            | Sep '69     |                                |
| 12-15          | 1000         | 1250N    | 225E    | 4800      | 4935      | 13,625             | Jun '69            | Nov '71     |                                |
| 12-17          | 1100         | 1700N    | 170E    | 4840      | 4950      | 60,180             | Oct '63            | Jun '68     |                                |
| 12-17 E        |              |          |         |           |           | 1,494              |                    |             | Sub drift only, no fill shown. |
| 12-18          |              |          |         |           |           | 927                |                    |             | MISSING PLANS                  |
| 12-19          | 1100         | 1500N    | 200E    | 4840      | 4920      | 19,108             | May '65            | Feb '69     |                                |
| 12-21          | 1150         | 2000N    | 200E    | 4935      | 4960      | 1,939              | Mar '60            | April '60   |                                |
| 12-24          | 1250         | 1925N    | 280E    | 4808      | 4850      | 22,507             | Mar '75            | Nov '76     |                                |
| 12-25          | 1250         | 2150N    | 300E    | 4760      | 4840      | 27,530             | Mar '76            | Dec '78     |                                |
| C 2-27         |              |          |         |           |           | 7,055              |                    |             | MISSING PLANS                  |
| 7-4            | 750          | 400S     | 220E    | 5260      | 5330      | 20,737             | Sep '54            | May '73     |                                |
| 7-26           | 750          | 2700S    | 140E    | 5260      | 5340      | 33,456             | Oct '67            | Dec '70     |                                |
| 9-4 / 9-4S     | 950          | 550S     | 200E    | 5060      | 5165      | 49,741             | Jul '67            | Oct '69     |                                |
| 9-12 S         | 950          | 1400S    | 200E    | 5170      | 5270      | 241,393            | Mar '61            | May '66     |                                |
| 9-16 N         | 750          | 1850S    | 230E    | 5270      | 5315      | 231,523            | Dec '66            | Aug '67     |                                |
| 9-16 SW        | 750          | 2000S    | 250E    | 5230      | 5310      | 14,150             | Nov '64            | Aug '67     |                                |
| 11-3 N         | 1100         | 400S     | 250E    | 4940      | 5090      | 79,269             | Nov '63            | Sep '68     |                                |
| 11-3 S         | 1100         | 600S     | 220E    | 4900      | 4934      | 50,636             | May '65            | Dec '66     |                                |
| 11-9           | 1100         | 10800N   | 7000E   | 4896      | 4920      | 120,000            | 1958               | 1964        |                                |
| 11-14          | 1100         | 1450S    | 280E    | 4980      | 5010      | 2,707              | Jul '68            | Jan '70     |                                |
| 12-4           | 1250         | 11300N   | 7300E   | 4812      | 4960      | 24,700             | Feb '61            | Apr '64     |                                |
| 12-7           |              |          |         |           |           |                    |                    |             | MISSING PLANS                  |
| 12-8           | 1250         | 10825N   | 7120E   | 4748      | 4911      | 235000             | Aug '58            | Jan '65     |                                |
| 12-9 N&S       |              |          |         |           |           |                    |                    |             | MISSING PLANS                  |
| 12-20          |              |          |         |           |           |                    |                    |             | MISSING PLANS                  |
| 15-8           | 1500         | 850S     | 400E    | 4680      | 4825      |                    | Mar '61            | Feb '68     |                                |
| 15-8 Cr.       | 1250         | 1000S    | 350E    | 4738      | 4748      | 1,336              | Dec '67            | Feb '68     |                                |
| 15-9           | 1500         | 950S     | 560E    | 4600      | 4640      | 1,758              | Jan '69            | Feb '69     |                                |
| 15-10          | 1500         | 1150S    | 670E    | 4540      | 4600      | 140,826            | Jun '66            | Aug '77     |                                |
| 15-13          | 1500         | 1330S    | 625E    | 4540      | 4650      | 95,301             | Aug '70            | Nov '74     |                                |
| 15-14          | 1500         | 1200S    | 600E    | 4560      | 4600      | 8,766              | Nov '74            | Jun '76     |                                |
| 15-18          | 1500         | 1820S    | 580S    | 4560      | 4595      | 18,194             | Oct '75            | Jun '76     |                                |
| 15-20          | 1500         | 275S     | 565S    | 4650      | 4700      | 4,299              | Aug '71            | May '72     |                                |
| 16-5 N         | 1500         | 350S     | 550E    | 4600      | 4690      | 15,133             | Sep '64            | Jun '70     |                                |
| 16-5 E         |              |          |         |           |           | 3,280              |                    |             |                                |
| 16-5 S         | 1250         | 550S     | 615E    |           | 4690      | 5,430              |                    | May '70     | Incomplete                     |
| 16-4-5-6       | 1500         | 650S     | 500E    | 4520      | 4590      | 186,727            | April '64          | Oct '66     |                                |
| 16-6 N         | 1500         | 325S     | 450E    | 4500      | 4555      | 3,207              | Dec '72            | Apr '73     |                                |
| 16-8           | 1500         | 800S     | 600E    | 4480      | 4595      | 72,944             | Feb '64            | Apr '69     |                                |
| 16-8 S         | 1500         | 1000S    | 600E    | 4520      | 4580      | 7,534              | Sep '65            | Dec '68     |                                |
| 16-9           | 1500         | 850S     | 520E    | 4505      | 4605      | 42,282             | Mar '64            | Jan '70     |                                |
| 16-11          | 1500         | 1050S    | 550E    | 4540      | 4625      | 150,175            | Sep '69            | Dec '73     |                                |
| L 94           | 575          | 1850N    | 750E    | 5340      | 5375      | 822                | Aug '72            | Aug '72     |                                |
| 4-43           | 575          | 2100N    | 800E    | 5470      | 5540      | 89,620             | Nov '71            | Jul '73     |                                |
| 7-15           | 750          | 1600N    | 800E    | 5270      | 5290      | 1,045              | Dec '77            | Mar '78     |                                |
| 7-42           | 750          | 2400N    | 600E    | 5270      | 5320      | 76,327             | May '68            | May '69     |                                |
| 7-42 #17       |              |          |         |           |           | 11,903             |                    |             | MISSING PLANS                  |
| 7-42 F.W.      | 750          | 2200N    | 700E    | 5240      | 5460      | 132,583            | Dec '68            | Aug '75     |                                |
| 7-43           | 750          | 1850N    | 750E    | 5300      | 5380      | 73,753             | Jun '71            | Nov '71     |                                |
| 9-17           |              |          |         |           |           |                    |                    |             | MISSING PLANS                  |
| S 4-74         | 575          | 7350N    | 2200W   | 5460      | 5485      | 8,154              | Oct '70            | Jun '78     |                                |
| 7-69           | 750          | 6900N    | 2050W   | 5360      | 5470      | 6,467              | Jan '68            | Nov '69     |                                |
| 7-71           | 750          | 7100N    | 2050W   | 5305      | 5475      | 21,614             | Jan '68            | May '70     |                                |
| 7-74           | 750          | 7400N    | 2100W   | 5320      | 5475      | 36,457             | Mar '67            | Oct '70     |                                |
| 7-76           | 750          | 7600N    | 2140W   | 5310      | 5440      | 7,985              | Jul '67            | Apr '70     |                                |
| 9-72           | 950          | 7200N    | 1920W   | 5110      | 5270      | 23,323             | May '72            | Aug '76     |                                |
| 9-73           | 950          | 7300N    | 1940W   | 5140      | 5310      | 32,043             | Dec '71            | Oct '78     |                                |
| 9-75           | 950          | 7500N    | 1925W   | 5100      | 5215      | 12,970             | Jun '73            | Feb '78     |                                |
| 9-76           | 950          | 7750N    | 2070W   | 5225      | 5305      | 19,563             | Nov '73            | Dec '74     |                                |
| 9-78           | 950          | 7775N    | 2050W   | 5200      | 5230      | 14,511             | July '75           | Nov '77     |                                |
| 11-77          | 950          | 8150N    | 1850W   | 5090      | 5130      | 134,893            | Oct '73            | Apr '75     |                                |
| 11-83          | 1100         | 8175N    | 1860W   | 5020      | 5190      | 45,311             | Mar '72            | Dec '77     |                                |

Prepared by: KSS  
Checked by: DBM



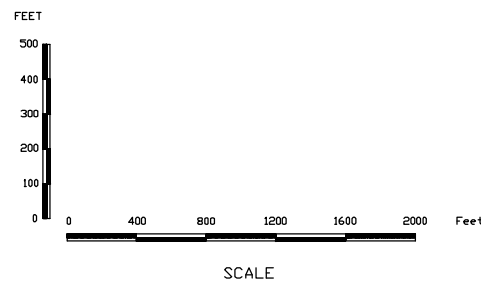
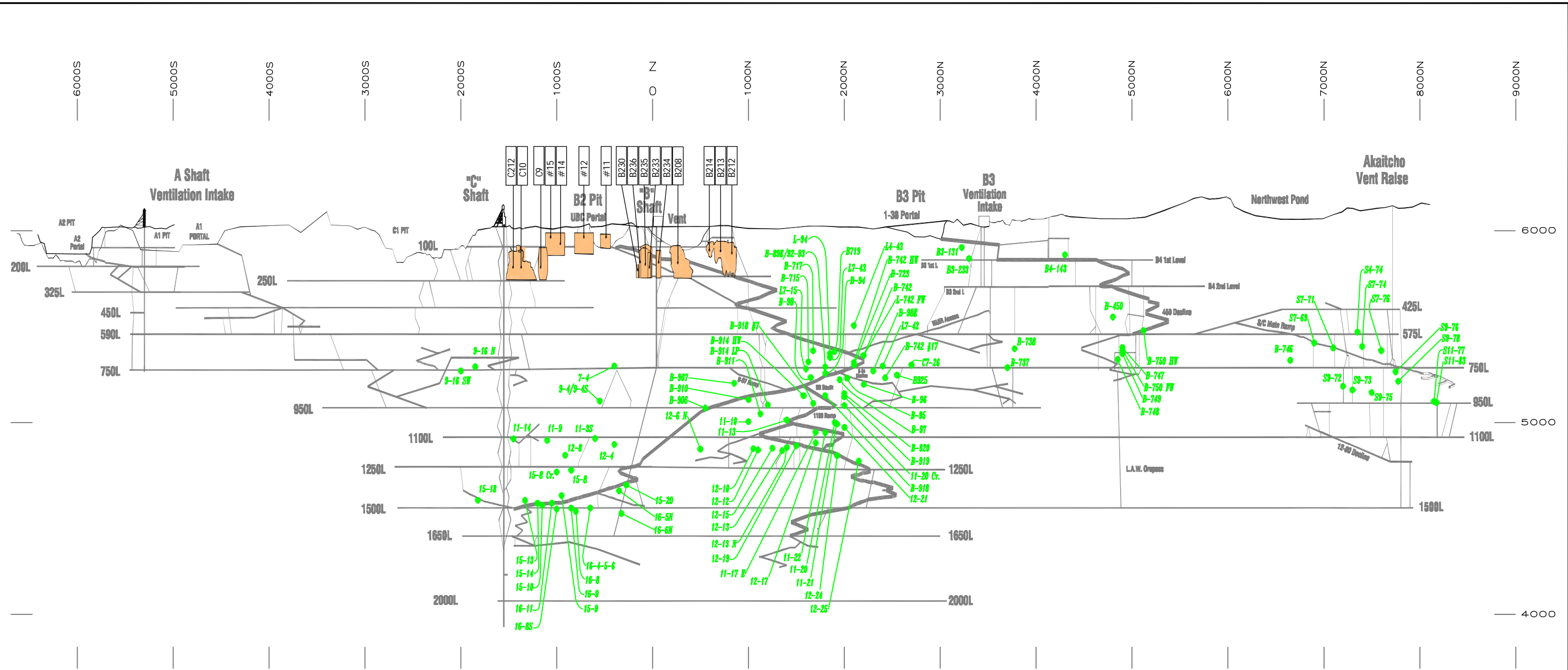


**TABLE 3**  
**Summary of Tailings Backfill Records**

| Year         | Ore Production Rate (tpd) | Ore Production Rate (tpy) | Annual Rep. Actual Ore Broken | DIAND Records | Backfill Poured  | Backfill as % Total Ore | Comments                            |
|--------------|---------------------------|---------------------------|-------------------------------|---------------|------------------|-------------------------|-------------------------------------|
| 1954         | 700                       | 255500                    | 218,140                       | 275,985       | 0                | 0                       |                                     |
| 1955         | 700                       | 255500                    | 254,222                       | 286,742       | 0                | 0                       |                                     |
| 1956         | 700                       | 255500                    | 270,002                       | 297,582       | ?                | ?                       |                                     |
| 1957         | 700                       | 255500                    | 270,640                       | 309,673       | ?                | ?                       |                                     |
| 1958         | 700                       | 255500                    | 309,050                       | 289,220       | 80,508           | 26%                     | First record of backfill production |
| 1959         | 700                       | 255500                    | 363,438                       | 321,002       | 118,478          | 33%                     |                                     |
| 1960         | 900                       | 328500                    | 170,605                       | 181,101       | 65,889           | 39%                     |                                     |
| 1961         | 900                       | 328500                    | 363,282                       | 366,515       | 123,605          | 34%                     |                                     |
| 1962         | 900                       | 328500                    | 367,294                       | 375,820       | 143,402          | 39%                     |                                     |
| 1963         | 900                       | 328500                    | 385,636                       | 388,190       | 155,175          | 40%                     |                                     |
| 1964         | 900                       | 328500                    | 392,710                       | 400,606       | <i>144,220</i>   | 37%                     | Backfill amount not specified       |
| 1965         | 900                       | 328500                    | 361,581                       | 395,001       | 155,158          | 43%                     |                                     |
| 1966         | 900                       | 328500                    |                               | 386800        | 152,006          | 46%                     |                                     |
| 1967         | 900                       | 328500                    |                               | 331922        | <i>152,006</i>   | 46%                     | Backfill amount not specified       |
| 1968         | 900                       | 328500                    |                               | 374717        | <i>152,006</i>   | 46%                     | Backfill amount not specified       |
| 1969         | 900                       | 328500                    |                               | 399647        | <i>152,006</i>   | 46%                     | Backfill amount not specified       |
| 1970         | 900                       | 328500                    |                               | 424774        | <i>152,006</i>   | 46%                     | Backfill amount not specified       |
| 1971         | 900                       | 328500                    |                               | 403819        | <i>152,006</i>   | 46%                     | Backfill amount not specified       |
| 1972         | 900                       | 328500                    |                               | 401272        | <i>152,006</i>   | 46%                     | Backfill amount not specified       |
| 1973         | 900                       | 328500                    |                               | 389460        | 133,700          | 41%                     |                                     |
| 1974         | 900                       | 328500                    |                               | 328099        | 99,643           | 30%                     |                                     |
| 1975         | 900                       | 328500                    |                               | 391969        | 80,213           | 24%                     |                                     |
| 1976         | 900                       | 328500                    |                               | 428154        | 65,505           | 20%                     |                                     |
| 1977         | 900                       | 328500                    |                               | 445672        | 50,797           | 15%                     |                                     |
| 1978         | 900                       | 328500                    |                               | 396656        | 1,200            | 0%                      | Last record of backfill production  |
| <b>Total</b> |                           |                           |                               |               | <b>2,481,535</b> |                         |                                     |

Notes: *Italics* indicates the amount is an estimate

Prepared by: KSS  
Checked by: DBM



- LEGEND**
- 15-18 - LOCATION OF TAILINGS BACKFILLED STOPES (approximately the centre of the stope opening)
  - LOCATION OF ARSENIC CHAMBERS

NOTE: Data compiled by DIAND Royal Oak Project Team.

File Ref: Backfill\_11X17.dwg

|   |                                       |          |             |  |
|---|---------------------------------------|----------|-------------|--|
| <p><b>SRK Consulting</b><br/>Engineers and Scientists</p> | Giant Mine                            |          |             |  |
|   | <b>LOCATIONS OF BACKFILLED STOPES</b> |          |             |  |
| PROJECT NO.<br>1C1001.07                                  | DATE<br>July 2002                     | APPROVED | FIGURE<br>1 |  |