



Preparing Reserve Files for MineSight® Strategic Planner

One key step in long-range scheduling with MineSight® Strategic Planner (MSSP) is to ensure a proper Reserve Classification. Reserve Classification will lead to mapping Production Classes, which also can be further mapped into Cost Classes. The terms Reserve Classes, Production Classes, and Cost Classes all refer to the different types of materials available at a mine. Classifying and reporting these materials can be achieved using such procedures as **modcls.dat** and **pitres.dat**.

modcls.dat

modcls.dat is used to assign a code item to each zone in each block of the block model (File 15) based upon ranges for up to 10 other grade/quality items. The primary application is to set up reserves material classes for each zone based upon cutoff criteria on the other grades. Additional applications set up code items for later selection of blocks/grids for stats, plotting, etc.

An external Input File must be built in the following format if you are using more than five grade items: (otherwise the file can be built using a panel within **modcls.dat**)

[The pound symbol (#) in column 1 makes a comment line]

```
CLASS/CODE# Min1 Max1 Min2 Max2 ...
Min10 Max10 IZ1 IZ2
```

where CLASS/CODE# is the number to assign to code item

and

Min1,Max1,etc are the grade ranges for the items in same order as items will be selected on the panel

and

IZ1,IZ2 are optional bench/level #s (if Bench Range option is used)

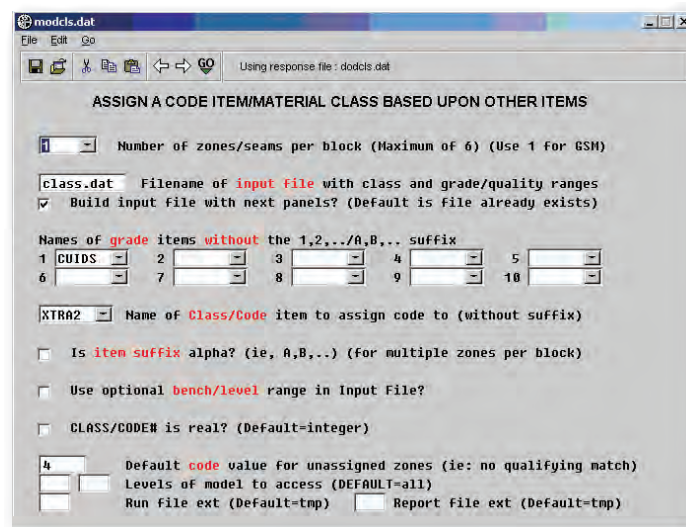
The previous paragraph can be better illustrated with a couple of examples:

1. Classifying Material based on Cutoff only.

This example uses a simple cutoff table to assign ore and waste, ore can also be sub-classified as Low Grade, Mid Grade, and High Grade as indicated in the following table:

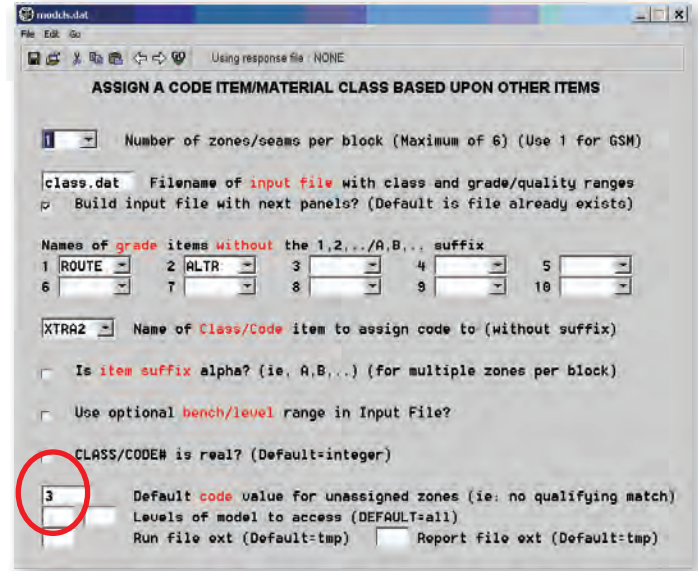
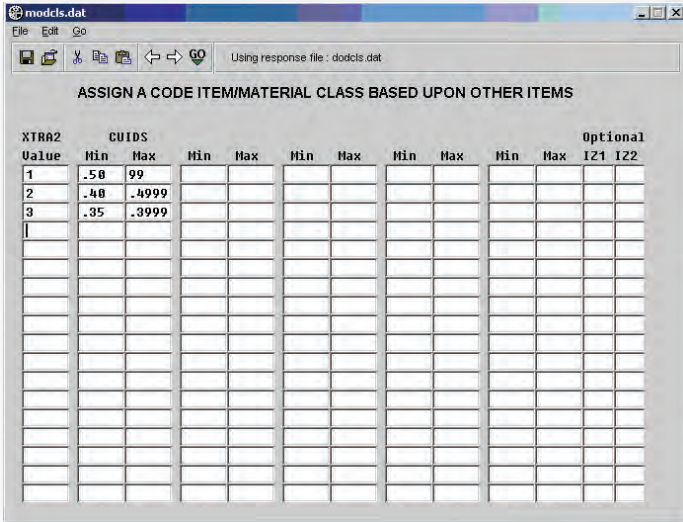
XTRA2	Reserve Class
1	High Grade
2	Mid Grade
3	Low Grade
4 (Default)	Waste

which in **modcls.dat** will look like:



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2. Classifying Material based on Destination and Processing Cost.

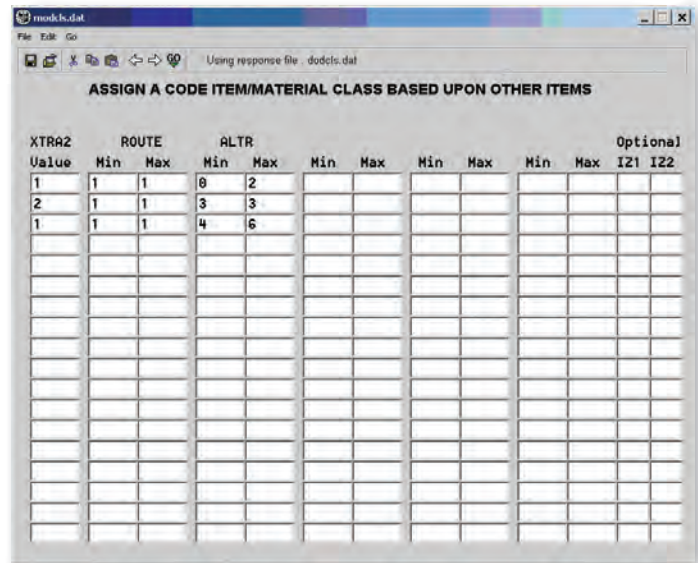
For this example, Destination code is either 1 or 2 (Ore and Waste respectively) and Alteration code is a value between 0 and 6. Alteration 3 is Hard Material, which has a higher processing cost.

ALTR Code	Recovery	Processing
0,1,2,4,5,6	75	4.20
3	85	4.80

Then our resulting classification, which is stored in the item XTRA2 is shown in the following table:

XTRA2	ROUTE	ALTR	Reserve Class
1	1	0,1,2,4,5,6	Ore Type 1
2	1	3	Ore Type 2
3	2		Waste

which in **modcls.dat** should be set as shown at the top of the next column:



Although the material classification could get more complex than the two examples, it will always be reduced to a simple one dimensional array, required by MSSP.

The second step in preparing the reserve files is to generate the files that will be used in MSSP. This can be accomplished using **pitres.dat**.

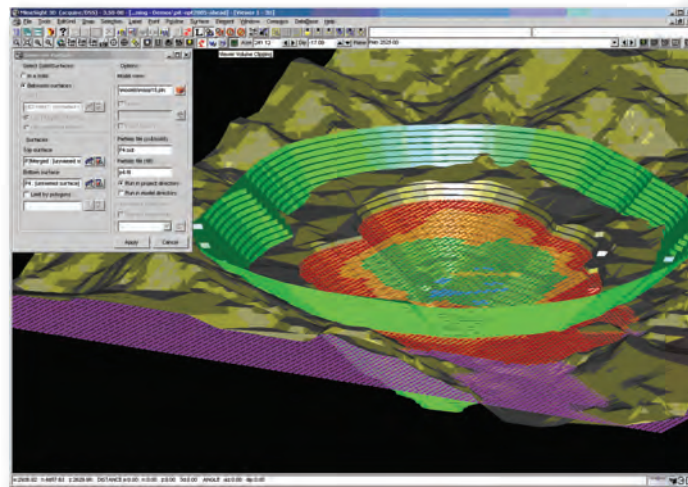
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pitres.dat

pitres.dat is used to determine the reserves of open pit 3DBM projects. These reserves can be generated from a MineSight® 3-D pit, from MineSight® Economic Planner gridded pits, from external partials files, or from rectangular boundaries specified on the Panel requesting the easting, northing, and elevation boundaries.

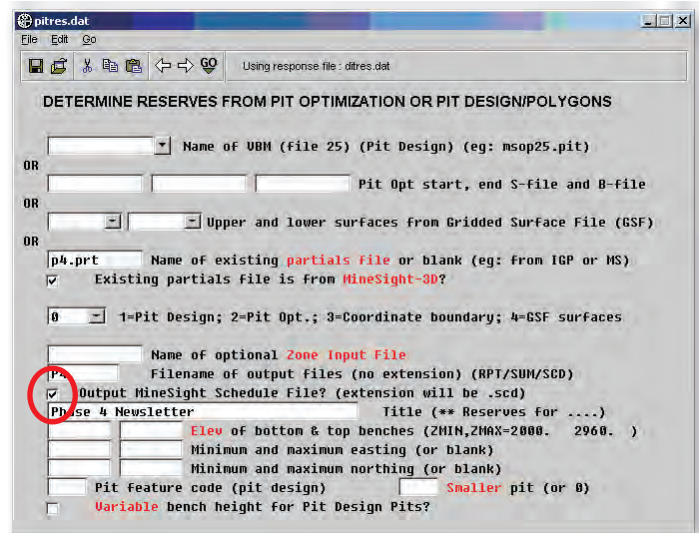
In general, the reserves for MSSP will be generated from MineSight® 3-D cumulative pit designs using **pitres.dat**, followed by incremental reserves using **pitinc.dat**. Cumulative pit designs are designs that include the current phase plus all previous phases. This is the preferred approach so that there isn't any double accounting if the pit clipped at topo or ore first options are used.



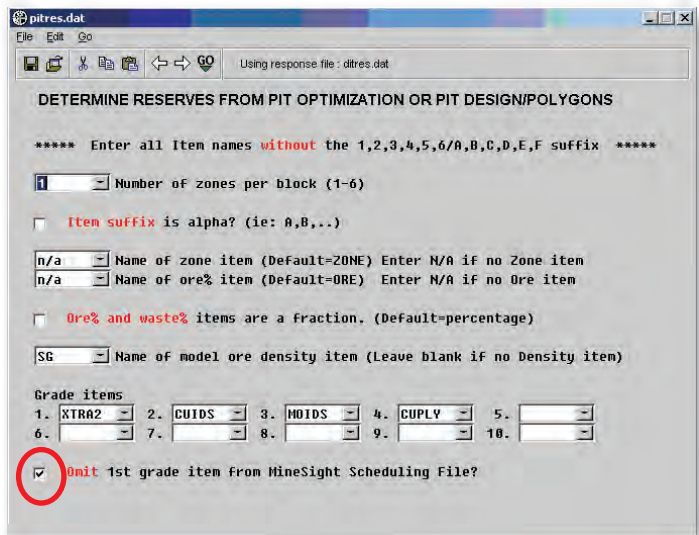
Another example, below, is needed with just topo and an individual phase and then a sample of **pitinc**.

The picture above shows generating partials for Phase 4 using Phase 3 merged with the TOPO. Partial for Phases 1, 2, and 3 were generated in a similar approach.

Setting up **pitres.dat** is not much different than reporting reserves. To generate the scheduling files, make sure you check the option **Output MineSight® Schedule File?** on the Second Panel.



The **omit first grade item** option is mainly used for creating scheduling material classes from a range of ZONE codes (i.e., it is only used for binning). In our examples, XTRA2 is the Zone item. XTRA2 will be used as the first grade item and the appropriate material classes will be created without showing up in the schedule reports.



Reserves can optionally be reported within cutoff bins or cumulative above each cutoff. Material greater than, or less than a cutoff can be wasted. The cutoffs are used as a less than test. That is, if the cutoffs are 1.0, 2.0, 3.0 then the cutoff bins range from ≥ 0 to < 1 , ≥ 1 to < 2 , ≥ 2 to < 3 , and ≥ 3 , respectively.

The cutoff bins are also used as material classes for scheduling. The material class label for each cutoff can optionally be specified on the panels (1 for less than cutoff1, \geq cutoff1, etc).

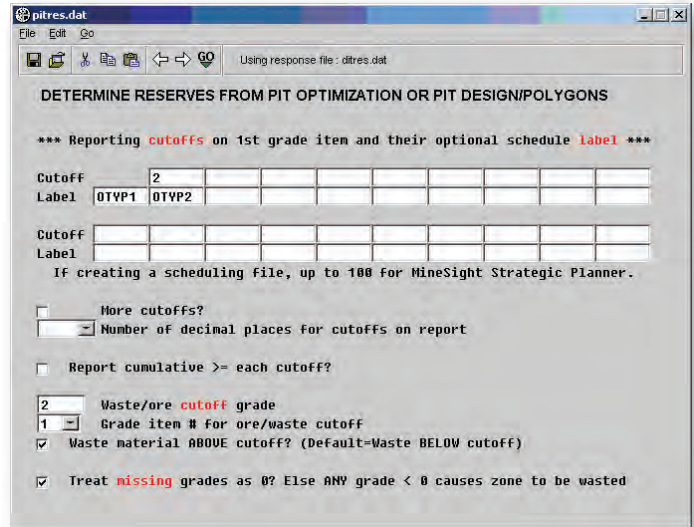
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In these particular examples, assigning the highest value to waste and using the option **Waste material ABOVE cutoff?** will eliminate reporting waste twice in the schedule file. (It can also be the lowest value; it is a user preference.)

Finally, on the last panel of **pitres.dat** we want to output a detailed report. The Reporting Factor only effects the standard **pitres.dat** report, but the Schedule File is always in actual tons. The factor does not effect the numbers in this file at all.

The files produced by **pitres.dat** are **p4.rpt** and **p4.scd**. They contain the same information but in different formats. **p4.scd** is in the format required by MSSP.



p4.rpt

*** RESERVES FOR PHASE 4

BENCH TOE	INSITU ORE (kBCMS)	INSITU ORE (kTONNES)	RUN OF MINE (kTONNES)	WASTE TOTAL (kTONNES)	ROM S/R	INSITU GRADES XTRA2	CUIDS	MOIDS	CUPLY
2735.0	0.	0.	0.	0.	-1.00	-1.0	-1.000	-1.000	-1.000
2720.0	0.	0.	0.	31.	-1.00	-1.0	-1.000	-1.000	-1.000
2705.0	0.	0.	0.	223.	-1.00	-1.0	-1.000	-1.000	-1.000
2690.0	0.	0.	0.	2338.	-1.00	-1.0	-1.000	-1.000	-1.000
2675.0	0.	0.	0.	6700.	-1.00	-1.0	-1.000	-1.000	-1.000
2660.0	0.	0.	0.	11178.	-1.00	-1.0	-1.000	-1.000	-1.000
2645.0	0.	0.	0.	15678.	-1.00	-1.0	-1.000	-1.000	-1.000
2630.0	0.	0.	0.	17625.	-1.00	-1.0	-1.000	-1.000	-1.000
2615.0	0.	0.	0.	19322.	-1.00	-1.0	-1.000	-1.000	-1.000
2600.0	11.	29.	29.	20455.	717.40	2.0	0.437	0.052	0.330
2585.0	70.	189.	189.	19867.	105.00	1.8	0.467	0.054	0.350
2570.0	228.	614.	614.	19010.	30.95	2.0	0.530	0.061	0.399
2555.0	464.	1252.	1252.	17957.	14.34	2.0	0.533	0.061	0.401
2540.0	820.	2213.	2213.	16524.	7.47	2.0	0.553	0.062	0.415
2525.0	1218.	3290.	3290.	14968.	4.55	1.9	0.561	0.062	0.421
2510.0	2095.	5656.	5656.	12127.	2.14	1.8	0.574	0.059	0.432
2495.0	2595.	7006.	7006.	10289.	1.47	1.9	0.637	0.067	0.479
2480.0	3097.	8361.	8361.	8408.	1.01	1.9	0.676	0.070	0.508
2465.0	3649.	9853.	9853.	6264.	0.64	1.9	0.692	0.074	0.520
2450.0	4097.	11062.	11062.	4451.	0.40	2.0	0.728	0.079	0.547
2435.0	4818.	13009.	13009.	3554.	0.27	1.9	0.767	0.086	0.576
2420.0	4639.	12525.	12525.	2928.	0.23	1.9	0.796	0.090	0.598
2405.0	4725.	12758.	12758.	1597.	0.13	1.9	0.831	0.093	0.625
2390.0	4311.	11640.	11640.	1631.	0.14	1.9	0.905	0.103	0.680
2375.0	3872.	10453.	10453.	1718.	0.16	1.8	0.928	0.107	0.697
2360.0	3514.	9488.	9488.	1549.	0.16	1.8	0.911	0.108	0.684
2345.0	1492.	4028.	4028.	1218.	0.30	1.8	0.866	0.094	0.651
2330.0	1304.	3522.	3522.	759.	0.22	1.8	0.807	0.086	0.606
2315.0	1070.	2890.	2890.	487.	0.17	1.8	0.788	0.084	0.592
2300.0	772.	2083.	2083.	455.	0.22	1.8	0.745	0.077	0.560
2285.0	534.	1441.	1441.	342.	0.24	1.7	0.710	0.078	0.533
2270.0	185.	499.	499.	624.	1.25	2.0	0.608	0.067	0.457
2255.0	54.	145.	145.	409.	2.83	2.0	0.656	0.073	0.492
TOTAL	49632.	134006.	134006.	240688.	1.80	1.9	0.772	0.086	0.580

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p4.scd

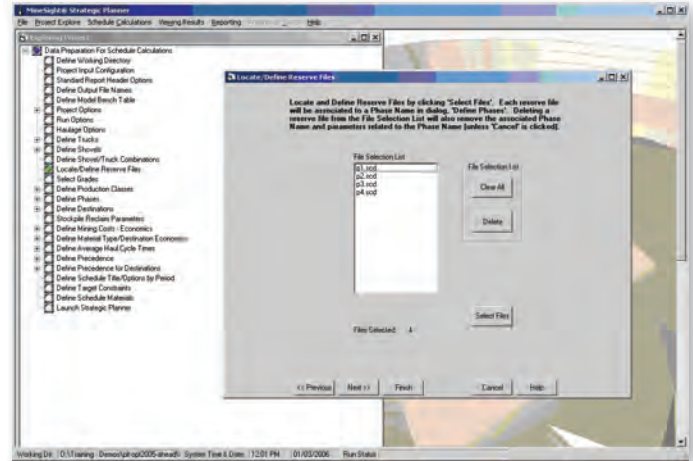
Reserves for Scheduling Pit from
PITRES

Pit from PITRES									
OTVP1	3	4	OTVP2	WASTE					
OTVP1	CUIDS	MOIDS	CUIPL						
15	3	0	3240000E+03						
16	3	0	30942000E+05						
17	3	0	22307400E+06						
18	3	0	23376600E+07						
19	3	0	67004820E+07						
20	3	0	11177838E+08						
21	3	0	15678036E+08						
22	3	0	17625276E+08						
23	0	1	1922383E+00						
24	2	0	28512000E+05	0.43676135E+00	0.51761361E-01	0.33005681E+00			
24	3	0	20454606E+08						
25	1	0	32400000E+05	0.44999999E+00	0.54999998E-01	0.33499999E+00			
25	2	0	15681600E+06	0.47088842E+00	0.53254130E-01	0.35360536E+00			
25	3	0	13867194E+08						
26	2	0	61430400E+06	0.53026370E+00	0.61155062E-01	0.39911392E+00			
26	3	0	19010052E+08						
27	2	0	12519360E+07	0.53285454E+00	0.60781572E-01	0.40059523E+00			
27	3	0	1756890E+08						
28	1	0	64800000E+05	0.50249999E+00	0.47499999E-01	0.37999999E+00			
28	2	0	21481200E+07	0.55420813E+00	0.62883105E-01	0.41635368E+00			
28	3	0	16523676E+08						
29	1	0	25984000E+06	0.48147131E+00	0.37549874E-01	0.36156483E+00			
29	2	0	30297240E+07	0.56767189E+00	0.63596940E-01	0.42619505E+00			
29	3	0	14968152E+08						
30	1	0	11043540E+07	0.45118966E+00	0.41412644E-01	0.34080533E+00			
30	2	0	45513900E+07	0.60394731E+00	0.63732691E-01	0.45360988E+00			
30	3	0	12127320E+08						
31	1	0	10139580E+07	0.53012780E+00	0.52671352E-01	0.39794215E+00			
31	2	0	59918940E+07	0.65550435E+00	0.69262983E-01	0.49238326E+00			
31	3	0	10288944E+08						
32	1	0	73942600E+06	0.47996305E+00	0.49380257E-01	0.36180791E+00			
32	2	0	75713940E+07	0.69652287E+00	0.72319360E-01	0.52335793E+00			
32	3	0	84084480E+07						
33	1	0	94251600E+06	0.46214506E+00	0.53889651E-01	0.34729460E+00			
33	2	0	89106480E+07	0.71578356E+00	0.76463892E-01	0.53788560E+00			
33	3	0	62537300E+07						
34	1	0	55274400E+06	0.47993551E+00	0.56163539E-01	0.36109026E+00			
34	2	0	10508778E+08	0.74091706E+00	0.79696771E-01	0.55674589E+00			
34	3	0	44511120E+07						
35	1	0	1054880E+07	0.80764799E+00	0.10705011E+00	0.60667935E+00			
35	2	0	11903274E+08	0.76337750E+00	0.84534886E-01	0.57345209E+00			
35	3	0	35544420E+07						
36	1	0	11924820E+07	0.94210839E+00	0.12902458E+00	0.70739843E+00			
36	2	0	11532872E+08	0.78107223E+00	0.86099832E-01	0.58676181E+00			
36	3	0	29284740E+07						
37	1	0	17534880E+07	0.87554968E+00	0.11300905E+00	0.65793236E+00			
37	2	0	11004984E+08	0.82436788E+00	0.89968643E-01	0.61934816E+00			
37	3	0	15973200E+07						
38	1	0	1483780E+07	0.10593711E+01	0.15165089E+00	0.79576261E+00			
38	2	0	10155942E+08	0.88254532E+00	0.95558052E-01	0.66306534E+00			
38	3	0	16305300E+07						
39	1	0	15948800E+07	0.97621328E+00	0.13759573E+00	0.73323106E+00			
39	2	0	88584840E+07	0.91897295E+00	0.10173732E+00	0.69032422E+00			
39	3	0	17176860E+07						
40	1	0	17868600E+07	0.88431276E+00	0.12089483E+00	0.66410425E+00			
40	2	0	77008320E+07	0.91733148E+00	0.10490428E+00	0.68917429E+00			
40	3	0	15490440E+07						
41	1	0	85011400E+06	0.73077757E+00	0.71810557E-01	0.54952162E+00			
41	2	0	31782780E+07	0.90266220E+00	0.99733929E-01	0.67809826E+00			
41	3	0	12182400E+07						
42	1	0	59113800E+06	0.56282816E+00	0.62888461E-01	0.42302274E+00			
42	2	0	29390400E+07	0.85617619E+00	0.91255248E-01	0.64299910E+00			
42	3	0	75929400E+06						
43	1	0	68931000E+06	0.69023265E+00	0.76928318E-01	0.51878730E+00			
43	2	0	22007700E+07	0.81872578E+00	0.86604340E-01	0.61544128E+00			
43	3	0	48729600E+06						
44	1	0	51742800E+06	0.82508452E+00	0.97219784E-01	0.62068252E+00			
44	2	0	15658920E+07	0.71804778E+00	0.70647629E-01	0.53932236E+00			
44	3	0	45489600E+06						
45	1	0	42120000E+06	0.93076921E+00	0.10769230E+00	0.69884613E+00			
45	2	0	10201140E+07	0.61879430E+00	0.65631251E-01	0.46467206E+00			
45	3	0	34198200E+06						
46	2	0	49912200E+06	0.60800713E+00	0.67069132E-01	0.45694254E+00			
46	3	0	62402400E+06						
47	2	0	14466600E+06	0.65557669E+00	0.72844343E-01	0.49226202E+00			
47	3	0	40805000E+06						

The rest of the file contains reserves in the following formats:

Bench# Reserve# Reserve_Tonnage 1st_grade
2nd_grade ... NGRDth_grade

The schedule files are then loaded into MSSP in the **Locate | Define Reserve Files** dialog as shown below:



User Sub-routines

Does your site currently make use of any user sub-routines, which will need to be re-compiled prior to switching to the MineSight® 2005 version? If so, are they available to submit to Mintec, Inc. for recompiling? Remember, this will need to be done before March 31, 2006!

Tip of the Month...

Never mix MineSight® program versions! If you are running MineSight® 3-D v.3.40-11, then be sure to use the MineSight® programs that are compatible with this version. Likewise, if you've installed MineSight® from the 2005 Update CD, then you are running v.3.50-00, and you should never update your \WINEXE directory with files from a different version.

For example, one of the major differences between MineSight® v.3.40 and v.3.50 is the ability to use large (UTM) coordinates. This was a system-wide change. In this case, normalized survey files will not work with earlier (pre-v.3.50) versions of MineSight® programs.

The general format of the Schedule file is:

The first two lines of each reserve file are comment lines and are ignored by the program. These two lines must be present.

The third line has two arguments. NCLS, NGRD

Where:

NCLS = Number of reserve classes (NCLS < 100).

NGRD = Number of grade items (NGRD < 20, only three will be read for schedule and standard reporting).

The fourth line has labels of reserve classes. The value of NCLS should be the number of reserve classes. Enter five labels on each line. A maximum of four lines is allowed for reserve labels. The reserve labels are limited to 10 characters.

The fifth line contains the grade labels. The value of NGRD should be the number of grade labels. The grade labels are limited to five characters.