**PC Underground Forecaster**

**Proposed Upgrades**

**Database Changes**

* Update to Office 2010
* CASE

CAL\_NO Default calendar to be used.

NUM\_WEEKS

PERIOD add shift?

QUALITY\_DB

RESULTS Name of a results table with quality (calculated from QUALITY\_DB) to be

added to db.

TIMESTAMP Date when forecast last run for this case.

Notes: a ‘RESULTS’ table in the current db is always generated with no quality (timing only).

If NUM\_WEEKS & PERIOD are left blank: calculate quality from current timing using

QUALITY\_DB and write into table specified in RESULTS.

If QUALITY\_DB & RESULTS are left blank: do timing only (overwrite ‘RESULTS’ table).

* CALENDAR

CAL\_NO

MON\_DATE

SHIFT

MON thru SUN Three records per week one for each shift (Midnight, Day, Afternoon) in a day, can include an ‘H” for holiday.

COMMENTS

Notes: this will ensure that any timing will never be more than a shift late. There will also be a program for easily generating calendars.

* GEOMETRY

SECT

TYPE Must exist in SECTION\_TYPE.

INIT\_STN

X\_COORD

Y\_COORD

AZIMUTH

LENGTH

WIDTH

ENTRIES+

RECOVERY

LINEAR\_FACTOR

* SECTION\_TYPE

TYPE Confined to the following:

for LWs LWA,B,C or D plus \*

for mains CMM plus \*

for development CMD plus \*

for advance CMA plus \*

for retreat CMR plus \*

where \* is any number of alphanumeric characters (user defined).

* GEOMETRY\_EXCEPTIONS

SECT must exist in GEOMETRY.

START\_STN

END\_STN

WIDTH

ENTRIES+

RECOVERY

LINEAR\_FACTOR

* RATES

UNIT Must exist in UNITS (allow wildcards).

TYPE Must exist in SECTION\_TYPE (allow wildcards).

FT\_P\_MS

TNS\_PMS

TNS\_FT

AVAILABILITY % of scheduled shift actually spent mining.

COAL

MAX\_TPMS

MAX\_FTPMS

Notes:

UNIT/TYPE combination must be unique.

* UNITS

UNIT Must begin with ‘LWx’ or ‘CMx’, where x is any number.

START\_DATE Unit cannot be used before this date (can be blank for start of forecast).

END\_DATE Unit cannot be used after this date (can be blank for end of forecast).

Notes:

The START\_DATE and END\_DATE define how many units can be active at the same time.

* SEQUENCE

SECT

START

END

BEGIN

UNIT Starting unit when it is available.

MOVE (old D1)

REF (old REF2)

STN (old STN2)

SETUP (old D2)

CONCURRENT true/false

Notes:

The UNIT must be ‘available’.

A unit becomes ‘available’ when it has finished mining a section as defined by a record in the table.

A blank UNIT means move unit from REF to SECT when it has reached STN, in which case the unit does not become available.

A unit cannot be mining in multiple sections at the same time.

There cannot be more units running at the same time than indicated by the UNITS table. (Units can be defined as ‘in-use’ using the START and END dates).

D1, D2 allow ability to specify shifts based on the actual calendar (C) as well as shifts based on the specified operating calendar (O). The format would be:

cccXO(default)/C and combinations thereof.

The ccc could be any number of user-defined characters (optional), and X is the number of shifts.

e.g L10C, S9O, MOV6 , 10

All delays would apply to this SECT.

D2 always decreases on REF reaching STN.

A CONCURRENT of false means D1 decreases when UNIT becomes available and D2 is zero (currently how it works).

A CONCURRENT of true means D1 can decrease when D2 starts decreasing and UNIT is available.

Regardless a code for a ‘teardown’ (to be agreed upon) in D1 can start as soon as UNIT becomes available.

A D2 of 0 means that the setup should be included in D1 using the appropriate codes (again to be agreed on).

All stations can specify BEGIN/END +/- as required, or not.

Supersections:

A supersection can be defined when 2 records in the table have the same SECT,START and

END entries, and differing UNIT and MOVE entries. (Only one can have REF, STN

and D2 entries, see example below.)

The different units move into the section whenever they become available.

The setup up is done once when the first unit becomes available and according to the CONCURRENT flag.

The rate in the supersection is the addition of the individual unit rates. See the EXCEPTIONS

table for how to specify a different rate.

e.g.

SECT START END UNIT D1 REF STN D2

A05 1000 13000 CM1 30 A02 1500 9

A05 1000 13000 CM2 27

Moving Units:

Leaving START, END, REF, STN and D2 blank implies a unit move.

D1 determines whether both the unit and equipment move into SECT (it becomes a

‘supersection’), or whether the specified unit replaces whatever unit is already in the

section (the equipment doesn’t move but becomes ‘available’).

e.g.

SECT START END UNIT D1 REF STN D2

A05 CM1 S5,M3

Or A05 CM1 18

The first example will create a ‘supersection’ since a category of M was specified in D1. (This is

arbitrary, another convention can be agreed upon later.)

The second example would replace units since no M was specified. In this case the unit being

replaced would become ‘available’ and the rate in SECT would be that of the new unit.

In both cases mining must have already started in the section.

Additional conditions:

Any record with the same SECT, START and END entries as an existing record but with only

REF and STN specified would impose an additional constraint on SECT before mining could

start.

e.g.

SECT START END UNIT D1 REF STN D2

A05 1000 13000 A04 13500

Any number of records can be entered for A05,1000,13000.

Only one can have a REF,STN and D2 (this would be the setup delay).

* EXCEPTIONS

Components:

AFFECTED\_UNIT Must exist in UNITS.

AFFECTED\_SECT Must exist in GEOMETRY.

AFFECTED\_TYPE Must exist in SECTION\_TYPE.

Notes:

Allow wildcards in all above fields.

A ‘+’ character in the AFFECTED\_UNIT field implies a ‘supersection’ rate and can only be

used with combinations 2 and 3 below.

Possible combinations:

UNIT SECT TYPE

1 X change unit wherever it is.

2 X X change unit if it is in specified section.

3 X X change RATES table.

4 X change whatever unit in section.

5 X change whatever unit in type.

6

1,2 applies only while unit in section but still subject to triggers.

3 is an actual change to RATES table, but could be temporary or permanent according to

triggers.

4,5 applies to whatever unit in section or any unit that comes into section.

6 affected units/section same as reference units/section.

REF\_UNIT Must exist in UNITS.

REF\_SECT Must exist in GEOMETRY.

REF\_TYPE Must exist in SECTION\_TYPE.

Notes:

Allow wildcards in all above fields.

Possible combinations:

UNIT SECT TYPE

1 X X

2 X X

3 X

4 X

5

1 thru 4 are used with position triggers.

5 is used for date triggers or ‘supersection’ rates. (Not allowed when there are no

AFFECTED units/stations (6 above).)

Triggers:

START\_STN (blank), BEGIN, END

START\_PLUS -ve or +ve number

END\_STN (blank), BEGIN, END

END\_PLUS -ve or +ve number

Notes:

PLUS - If STN is (blank) then number is an absolute stationing.

If STN is BEGIN then add number to INIT\_STN from GEOMETRY.

If STN is END then subtract number from (INIT\_STN + LENGTH) from

GEOMETRY.

START\_DATE

START\_SHIFT Midnight(default), Day, Afternoon

END\_DATE

END\_SHIFT Midnight, Day, Afternoon (default)

DURATION no. of scheduled shifts

Position Trigger Combinations:

START\_STN/PLUS END\_STN/PLUS DURATION

X Reference Exception (permanent)

X X Area Exception (temporary)

X X Period Exception (temporary)

Date Trigger Combinations:

START\_DATE/SHIFT END\_DATE/SHIFT DURATION

X Date Exception (permanent)

X X Period Exception (temporary)

X X Period Exception (temporary)

Notes:

Position triggers can be ANDed with date triggers.

If there are no reference units/stations (option 5 above) then there should be date trigger

combinations only or no triggers at all (‘supersection’ rate).

Change any or all of the following:

FT\_P\_MS

TNS\_P\_MS

Notes:

Blank or a number, 0 is not allowed.

Must specify one or the other, not both.

INCRS A percentage if non-blank (can be above 100). Used as a multiplier to current rate.

0 puts unit/section into idle/shutdown mode (a delay).

REASON Optional when INCRS is 0. (Format should be the same as D1,D2 in SEQUENCE).

Notes:

Any entry will cause a restart after a shutdown. To restart at current rate set INCRS to 100

with no FT\_P\_MS or TNS\_P\_MS.

TNS\_P\_FT

AVAILABILITY A percentage. (See RATES.)

CAL\_NO Must be in CALENDAR table.

* SHUTDOWNS

UNIT

SECT

TYPE

LW LW UNIT in UNITS table.

START\_DATE If blank default to start of forecast.

END\_DATE If blank default to end of forecast.

Note:

UNIT/SECT/TYPE follow the same rules as the AFFECTED components in EXCEPTIONS.

These exceptions occur during LW moves and cause the affected units/sections to be shutdown

during the move.

* SAMPLES and ADJUSTMENTS Tables

Can be missing or be overridden by TONS\_PER\_FT in RATES table.

Add a third type: CMR for CM retreat sections.

* RESULTS Table

BEGIN

SECT

TYPE

UNIT

SUPER

START

END

AREA

LATE

LEAD

MAX\_USED

PERIOD

RECOV

LINEAR\_FEET

SCHEDULE List of shifts scheduled each day this period: 0 thru 32 entries, comma delimited.

SHIFTS Sum of shifts worked in period: from SCHEDULE .

DAYS Sum of days scheduled in period: from SCHEDULE (where shifts > 0).

AVAILABILITIES List of availabilities for each shift scheduled.

AVAILABILITY Sum of availabilities.

Add DELAYS List of shifts delayed each day this period: 0 thru 32 entries, comma delimited.

Add TYPE\_DAYS List of delay types corresponding to shifts in DELAYS: 0 thru 32 characters,

comma delimited.

Note: possibly remove SEAM\_HT from quality fields and include DLN\_THICK from ADJUSTMENTS on reports.

Database Editing

* Auto complete section names
* Ability to filter/sort tables for display/editing
* Allow both lower and upper case
* Import calendars from Excel
* Set ‘dirty flag’ in sequence table
* Will need:

Updated ‘New’ database function

‘Import’ old database function

* Check RECOV value in GEOMETRY table (e.g. warn if <35% for CMs)
* Ability to copy/paste/insert multiple rows (perhaps color rows?)
* CASE editing with option to run
* Updated ‘Export’ function
* Change section names as a group

Report Writer

* Need only ‘Select Report’ option from current VCReport
* Add ‘Print Preview’ function
* Add Quality Data Reports
* Add this as an option to Database Editing/Microstation

WinFore

* Reduce to ‘Run’ option only with a single ‘Start’ button: still allow case editing
* Also invoke from Database Editing/Microstation (would go directly to start)
* There would be no Results (VCReport) or Geometry(VCMine) options

Bobby will handle the following

Microstation

* Show delays from Sequence Table
* Remove Access button from Forecaster Menu
* Additional mapping features: quality, clean tns/ft, feet/ms, etc.
* Specify Geometry and/or ref exceptions graphically
* Advance/Retreat dialog needs additional parameters to calculate retreat geometry
* More fields/totals in ‘Timing Loop Results’ dialog and display