

RECALCULATED GAS PLANNING

Plan for a diver in a team of three with a single recalculation of thirds

Use the gas planning worksheet

Depth	Interval
2 ATA	
3 ATA	
4 ATA	

KEY

SP	Start Pressure	PI	Pressure In
UP	Usable Pressure	PO	Pressure Out
TP	Turn Pressure	TI	Time In
		TO	Time Out

SP:
UP:
TP:

Distance:
PI:
TI:

TP:
TI:

PO:
TO:

PO:
TO:

PO:
TO:

Distance:

Avg Depth:

Recalc

 SP:
MG:
UP:
TP:

TP:
TI:

Distance:

MG: Minimum Gas
 Pressure required to get to waypoint X 2

Populate Intervals chart for reference from where it should be written down in wetnotes

Depth	Interval
2 ATA	100
3 ATA	150
4 ATA	200

Also populate anticipated Average Depth

 PO:
TO:

 Avg Depth: 30

At an average of 30' an interval of 100psi/5 minutes will be assumed for the rest of the example

Normal Dive

Starting with a full set of AL80s we can populate the SP: 3000
 UP is $1/3 = 1000$
 TP is remainder = 2000

SP: 3000	Distance:	TP:
UP: 1000	PI:	TI:
TP: 2000	TI:	

PO: TO:	PO: TO:	PO: TO:	Distance:
		Recalc	
		SP:	TP:
		MG:	TI:
		UP:	
		TP:	

	Distance:
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20 minutes into our dive we notice an interesting jump we might want to explore during return
 Swimming at 30fpm we can calculate our penetration distance to be 500'
 $20 \times 30 = 500$

SP: 3000	Distance: 500	TP:
UP: 1000	PI:	TI:
TP: 2000	TI: 20	

PO: TO:	PO: TO:	PO: TO:	Distance:
		Recalc	
		SP:	TP:
		MG:	TI:
		UP:	
		TP:	

	Distance:
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It is unsurprising that the gauge reads 2600psi
 20 minutes is 4 five-minute intervals; at 30 feet our interval is 100
 $4 \times 100 = 400$
 $3000 - 400 = 2600$

SP: 3000	Distance: 500	TP:
UP: 1000	PI: 2600	TI:
TP: 2000	TI: 20	

PO:	PO:	PO:	Distance:
TO:	TO:	TO:	

Recalc

SP:

MG:

UP:

TP:

TP:
TI:

Distance:

Backreferencing we know, from this point, we can exit in 20 minutes using 400psi

The first portion of the dive plan was to swim to another cenote 1200 feet away
 At 30fpm the swim takes 40 minutes
 $1200' / 30\text{fpm} = 40$

SP: 3000	Distance: 500	TP:
UP: 1000	PI: 2600	TI: 40
TP: 2000	TI: 20	

PO:	PO:	PO:	Distance: 1200
TO:	TO:	TO:	

Recalc

SP:

MG:

UP:

TP:

TP:
TI:

Distance:

40 minutes / 5 minute intervals X interval = gas used
 $40/5 \times 100 = 800$

3000psi Starting Pressure - 800psi Pressure Used = Turn Pressure of 2200

SP: 3000	Distance: 500	TP: 2200
UP: 1000	PI: 2600	Ti: 40
TP: 2000	TI: 20	

PO:	PO:	PO:	Distance: 1200
TO:	TO:	TO:	

Recalc

SP:

MG:

UP:

TP:

TP:
Ti:

Distance:

A 20 minute swim from waypoint to turn, and a 20 minute swim back puts us at minute 60
 The 20 minute return (4 intervals) has led our diver to consume another 400psi
 $20/5 \times 100 = 400$
 Since Turn Pressure was 2200 the diver is not surprised to see 1800psi on the gauge

SP: 3000	Distance: 500	TP: 2200
UP: 1000	PI: 2600	Ti: 40
TP: 2000	TI: 20	

PO:	PO:	PO: 1800	Distance: 1200
TO:	TO:	TO: 60	

Recalc

SP:

MG:

UP:

TP:

TP:
Ti:

Distance:

The team stops to determine recalculation pressure
 Our diver uses 1800psi as the new Starting Pressure
 But remembers that the 20 minute swim from this point will require 400psi individually
 This figure is doubled (in case of a gas share) to determine a Minimum Gas of 800psi

SP: 3000	Distance: 500	TP: 2200
UP: 1000	PI: 2600	Ti: 40
TP: 2000	TI: 20	

PO:	PO:	PO: 1800	Distance: 1200
TO:	TO:	TO: 60	

<u>Recalc</u>	
SP:	1800
MG:	800
UP:	
TP:	

TP:
Ti:

Distance:

MG is subtracted from SP as a reserve giving us 1000psi as a Provisional Starting Pressure
 Thirds are calculated from this Provisional Pressure as 300psi Usable Pressure

SP: 3000	Distance: 500	TP: 2200
UP: 1000	PI: 2600	Ti: 40
TP: 2000	TI: 20	

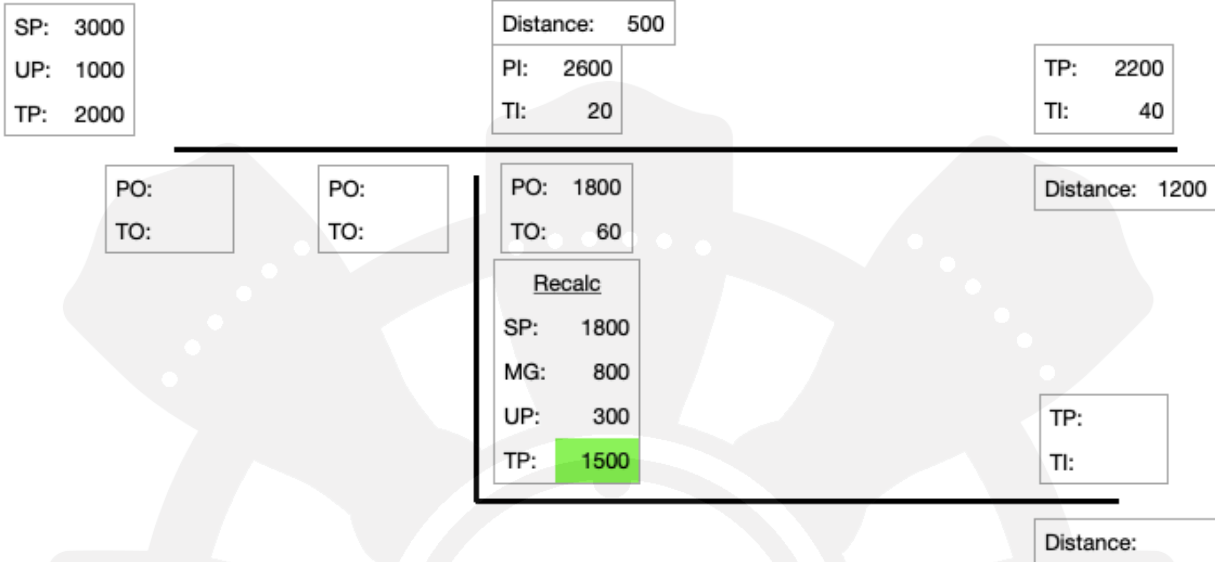
PO:	PO:	PO: 1800	Distance: 1200
TO:	TO:	TO: 60	

<u>Recalc</u>	
SP:	1800
MG:	800
UP:	300
TP:	

TP:
Ti:

Distance:

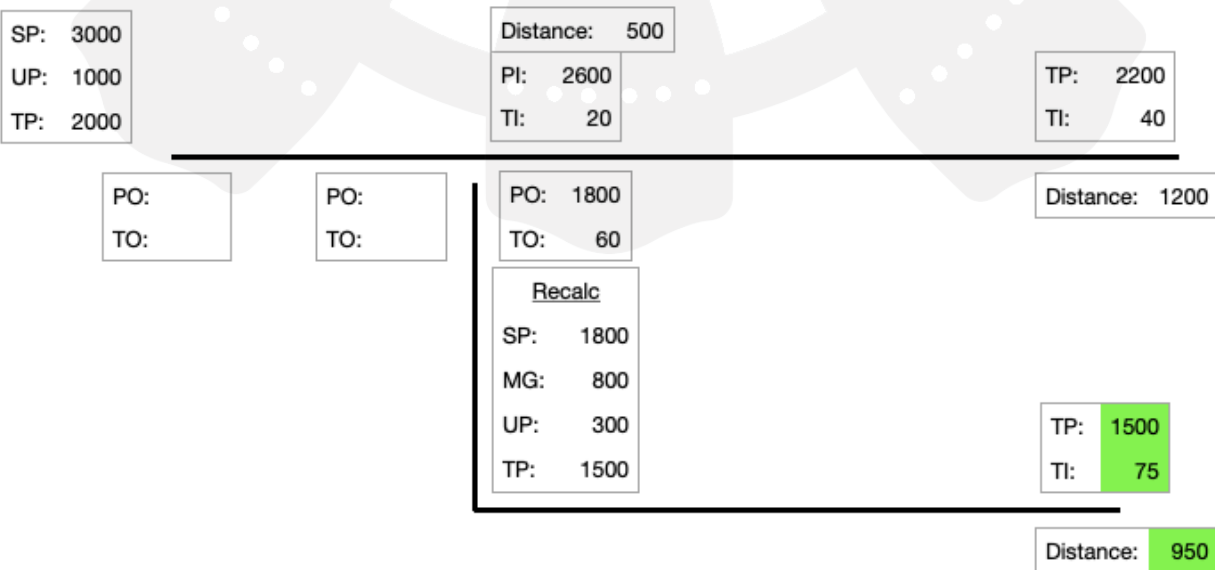
Each having recalculated their new UP the team communicates to determine the lowest UP
 The lowest UP will set UP for all divers in the team
 Luckily, this team all has an precisely identical RMV, so UP is 300psi
 This is now subtracted from SP to give us our new TP of 1500psi
 $1800 - 300 = 1500$



By the time our divers reach the TP they will have swam for about 15 minutes
 $300 \text{ psi UP} / 100 \text{ psi interval} = 3 \text{ intervals}$
 $3 \text{ intervals} = 15 \text{ minutes}$

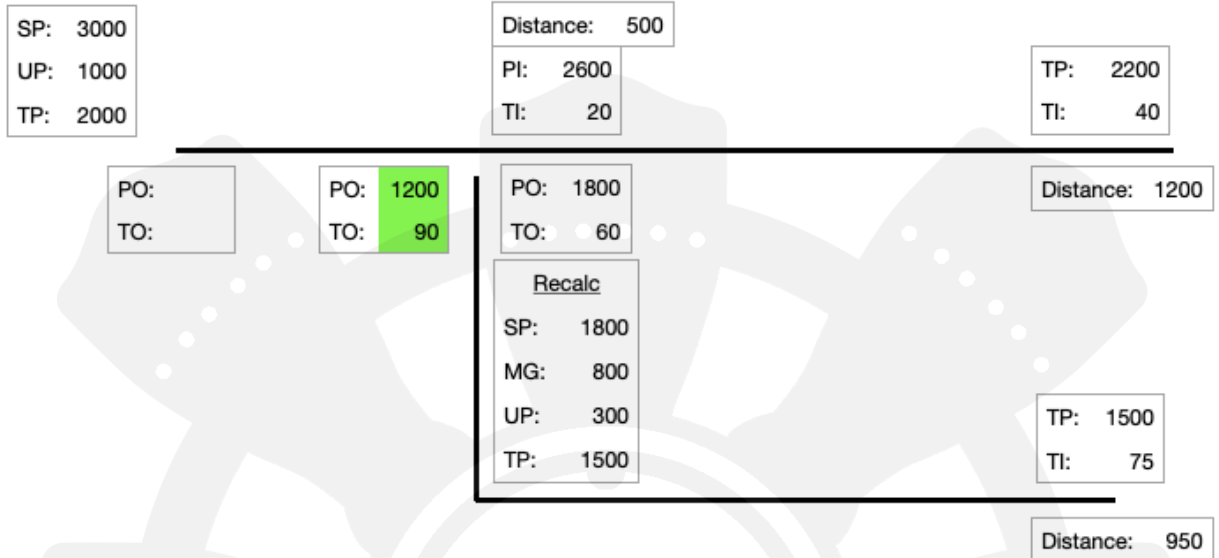
In 15 minutes of swimming at 30fpm our divers should re-penetrate an additional 450 feet
 Added to the waypoint distance of 500 feet
 Our divers are about 950 feet from the exit at turn

This is approximately minute 75
 $60 \text{ minutes back to our waypoint} + 15 \text{ minute penetration}$



15 minutes in = 15 minutes out
Divers return to the waypoint at minute 90

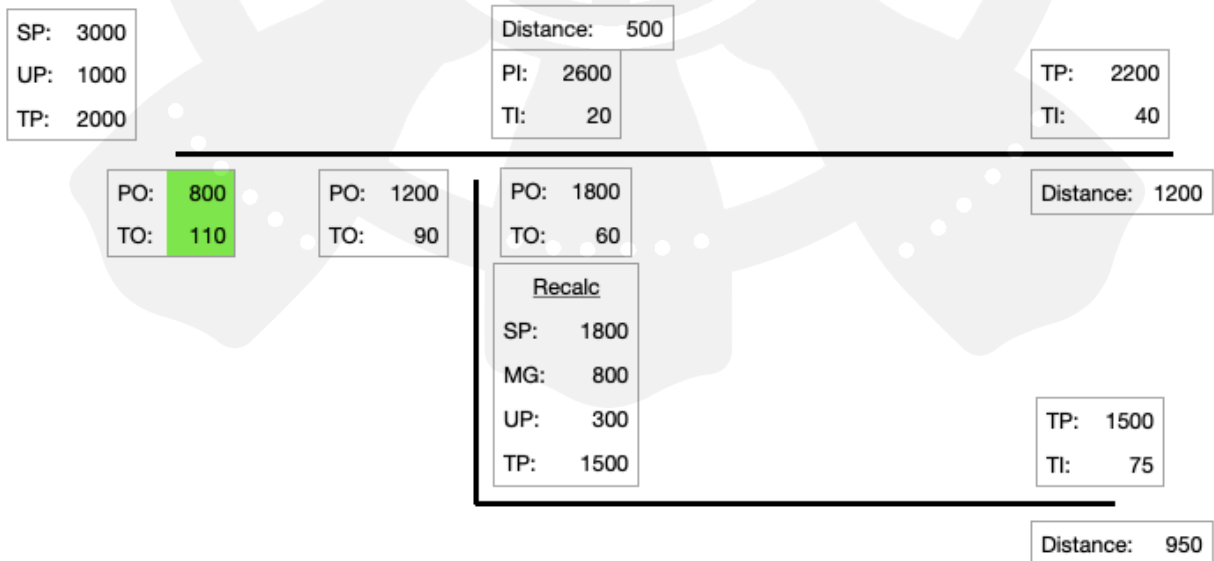
300psi in = 300 psi out
600psi used for the second penetration from the SP of 1800 leaves 1200psi in backgas



And so our divers exit

The 20 minute swim to the exit should consume 400psi (as a mirror of the initial entry)

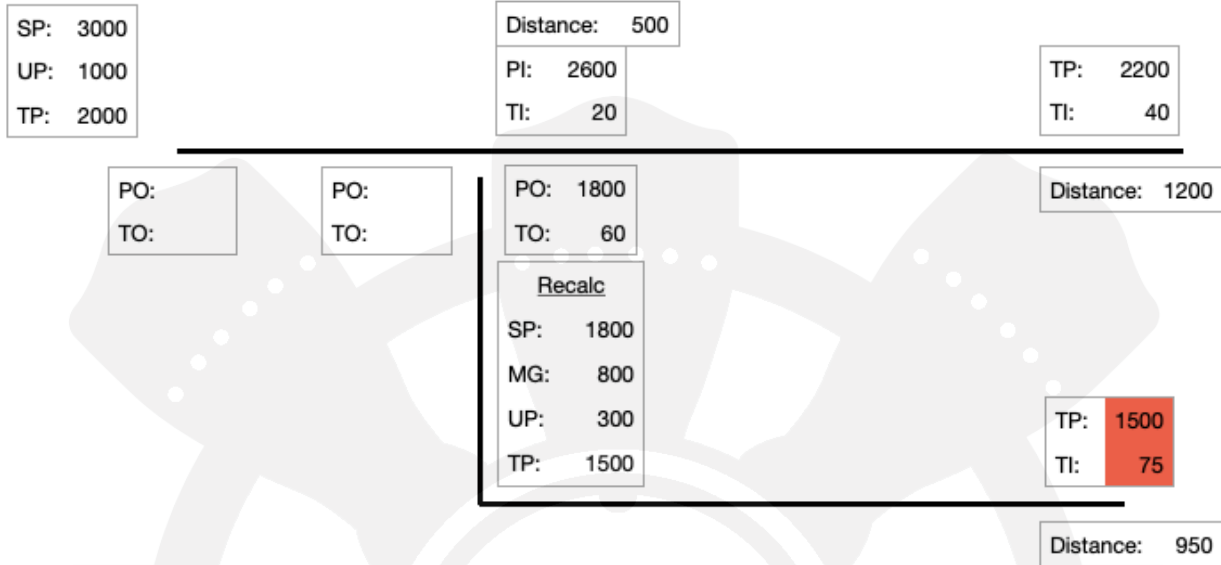
This puts our divers on the surface at minute 110 with 800psi remaining



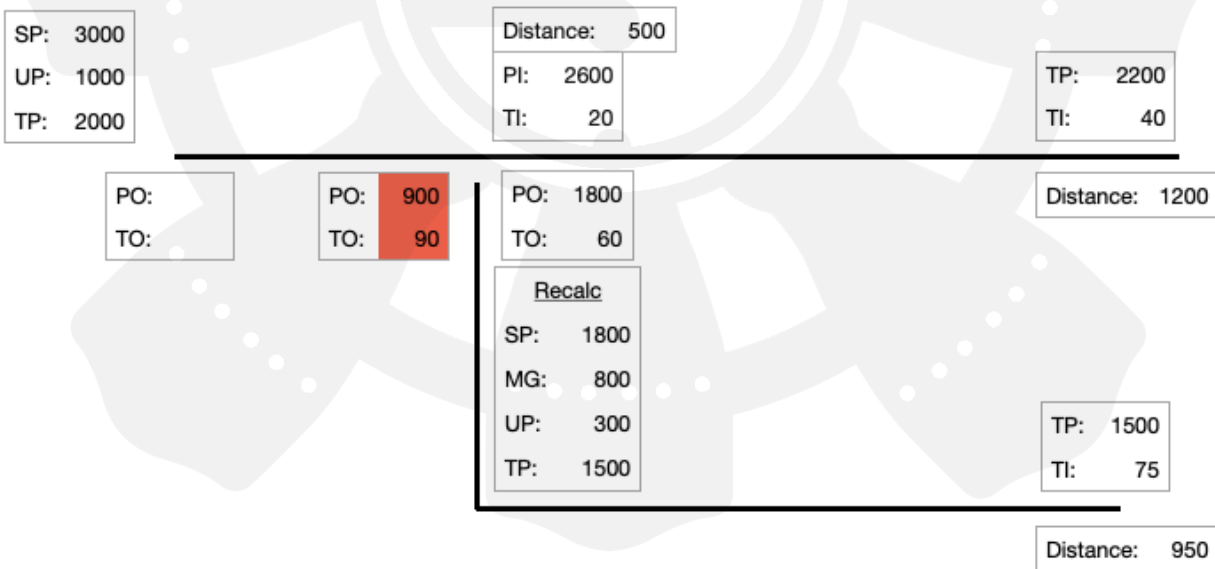
Everyone goes home for tea and cookies

OOG Emergency

Returning to the maximum point of secondary penetration....
 A teammate has a catastrophic gas loss and a gas share is required to return.



Because all divers have an absolutely matched RMV, each breathed 300 psi (15cf) to this point
 To return to the waypoint sharing gas two divers will require 30cf (600psi)

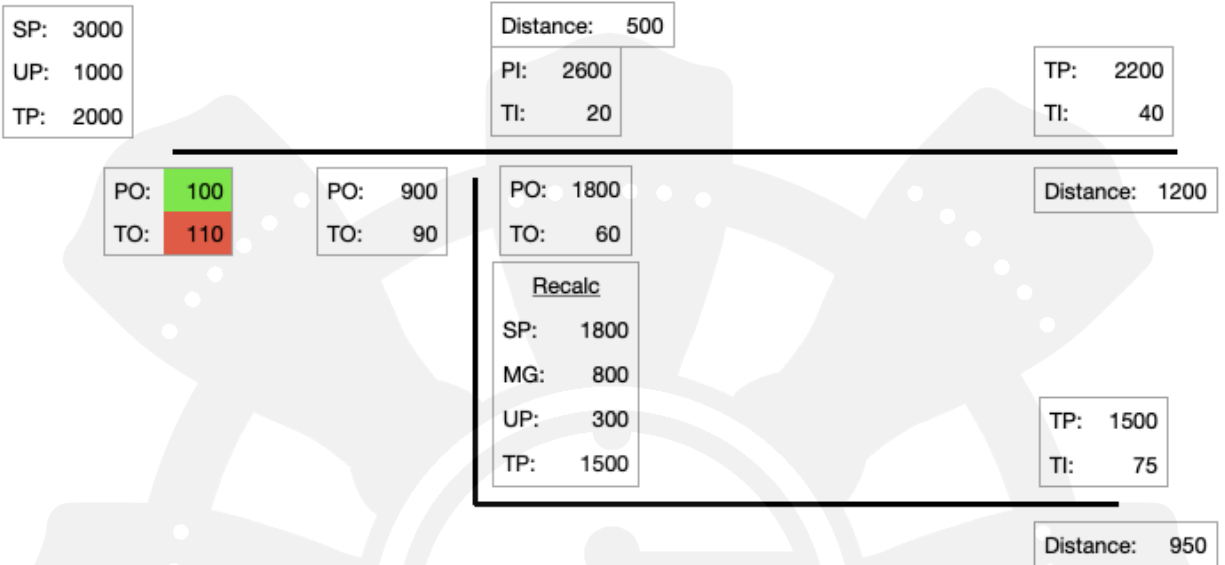


The 15 minute swim return to the waypoint leaves our divers with 900psi remaining in backgas
 1500 TP - 600 used = 900psi

The additional 20 minute swim home will require another 800psi
20 minutes / 5 minute intervals X 200 interval (doubled because of two divers) = required gas
 $20/5 \times 200 = 800$

A good reminder of why our MG was 800psi

After 20 minutes our divers surface at minute 110 with 100psi remaining in their shared tanks



100psi, naturally, is not a huge comfort
But everyone still goes home for tea and cookies

In a team of only 2 UP should be dialled back for a further safety buffer