Tec 50

Tec 50 Knowledge Development One

Manual Supported Content

Study assignment: *Tec Deep Diver Manual*, pg 230, Equipment V, Tec Exercise 5.3

Other Delivery Content, Tec 50-1

Study assignment: Tec 50 Handout 1

Manual Supported Content

Study assignment: *Tec Deep Diver Manual*, pg 231-232, Thinking Like a Tec Diver V, Tec Exercise 5.4.

Other Delivery Content, Tec 50-2

Study assignment: Tec 50 Handout 2

Manual Supported Content

Study assignment: *Tec Deep Diver Manual*, pg 233-235, Mission Planning, Tec Exercise 5.5.

Tec 50 Knowledge Review One

Please complete this review to hand in to your instructor. If there's something you don't understand, review the related material. If you still don't understand, be sure to have your instructor explain it to you.

1. What are the limits of your training as a Tec 50 diver?

2. What is the priority and how do you respond to an unresponsive diver at depth during a decompression dive?

3. In what situation could long hose gas sharing be necessary in the decompression phase of a technical dive?

4. Professionals involved with rescue sometimes cite the philosophy "Better thee than me." What does this mean and how does it apply to tec diving?

5. How do you plan for "specific" mistakes and emergencies?

6. What are three reasons may you want to "tec dive" in a pool or shallow water?

7. What is the most common mistake in mission planning? Where does mission planning rank with the other aspects of a tec dive?

8. For a presentation that you are going to give to local biologists on invertebrate populations on a local reef that about 2 kilometers/1 mile long, you are interested in estimating the number of sea stars per square metre/yard at depths between 30 meters/100 feet and 42 meters/140 feet. Your team plans to get this number; what subtasks might this mission entail? Would it be reasonable to do this in a single dive? How many dives might it take assuming a single team of three divers?

Student Diver statement: I've reviewed the questions I answered incorrectly or incompletely and I now understand what I missed.

Signature _____ Date _____

Tec 50 Knowledge Development Two

Manual Supported Content

Study assignment: *Tec Deep Diver Manual*, pgs245-252, Chapter Six, all Tec Exercises.

Other Delivery Content, Tec 50-3

Study assignment: Tec 50 Handout 3

Tec 50 Knowledge Review Two

Please complete this review to hand in to your instructor. If there's something you don't understand, review the related material. If you still don't understand, be sure to have your instructor explain it to you.

1. Define *decompression sickness, arterial gas embolism* and *decompression illness:*

2. List the signs and symptoms of decompression illness.

3. Explain the procedure for first aid for suspected decompression illness.

4. Explain how to administer a field neurological exam.

5. Explain how having diver accident insurance can make treatment for decompression illness more effective.

6. How does administering oxygen benefit a patient with decompression illness?

7. List the steps you will take as a prudent tec diver to broaden your abilities and limits within tec diving.

8. What quality should you have to extend your personal limits at an appropriate pace?

9. What is trimix?

10. What are the advantages and disadvantages of diving with trimix?

11. What will your qualifications be with respect to diving with trimix as a Tec 50 diver?

12. (Metric) You plan a dive to 44 metres using a single gas enriched air computer set for EANx26. You plan to decompress using EANx80 from 9 metres to the surface. You estimate that your bottom time will be 40 minutes. Your dive tables for EANx26 show that 40 minutes at 44 metres requires 3 minutes decompression at 12 metres, 10 at 9 metres, 17 at 6 metres and 43 at 3 metres. Your ascent rate is 10 mpm. Your SAC rate is 19 litres per minute on the working part of the dive, and 16 lpm (litres per minute) when decompressing.

- **Following the rule of thirds, how much of each gas do you need for this dive?**

- **If you have twin 18 litre cylinders with 170 bar of EANx26 do you have enough EANx26 for the dive? If you have a 13 litre cylinder with 205 bar of EANx80, do you have enough EANx80 for the dive? How much do you have of each?**

What are your OTUs and "CNS clock" after the dive?

- **If you'll be diving again in two and a half hours, and you'll be staying within the mission averages for three days of diving, how much "CNS clock" time and how many OTUs can you have on the second dive?**

12. (Imperial) You plan a dive to 145 feet using a single gas enriched air computer set for EANx26. You plan to decompress using EANx80 from 30 feet to the surface. You estimate that your bottom time will be 40 minutes. Your dive tables for EANx26 show that 40 minutes at 145 feet requires 3 minutes decompression at 40 feet, 10 at 30 feet, 17 at 20 feet and 43 at 10 feet. Your ascent rate is 30 fpm. Your SAC rate is .8 cubic feet per minute on the working part of the dive, and .65 cf when decompressing.

- **Following the rule of thirds, how much of each gas do you need for this dive?**

- **If you have twin 104 cf cylinders, working pressure 2400 psi, with 2500 psi of EANx26 do you have enough EANx26 for the dive? If you have a 104 cf cylinder, working pressure 2400, with 2300 psi of EANx80, do you have enough EANx80 for the dive? How much do you have of each?**

- **What are your OTUs and "CNS clock" after the dive?**

- **If you'll be diving again in two and a half hours, and you'll be staying within the mission averages for three days of diving, how much "CNS clock" time and how many OTUs can you have on the second dive?**

13. (Metric) You plan a dive to 50 metres using a single gas enriched air computer set for air. You plan to decompress using oxygen from 6 metres to the surface. Using desk top software you estimate that your bottom time will be 25 minutes. Using desk top deco software, you generate air dive tables that show that 25 minutes at 50 metres requires 2 minutes decompression at 9 metres, 4 at 6 metres and 13 at 3 metres. Your ascent rate is 10mpm. Your SAC rate is 22 litres/min on the working part of the dive, and 18 l /min when decompressing.

• **Following the rule of thirds, how much of each gas do you need for this dive?**

If you have twin 21 litre cylinders with 150 bar of air, how much gas volume do you have?

Is it enough for the dive?

At what back gas pressure should you leave the bottom to assure you can complete your decompression and have a one-third reserve left?

If you have a 7 litre cylinder with 195 bar of oxygen, how much gas volume do you have?

Is it enough for the dive?

• **What are your OTUs and "CNS clock" after the dive?**

- **If you will be diving again in three hours, and you will be staying within the mission averages for five day of diving, how much "CNS clock" time and how many OTUs can you have on the second dive?**

13. (Imperial) You plan a dive to 165 feet using a single gas enriched air computer set for air. You plan to decompress using oxygen from 20 feet to the surface. You estimate that your bottom time will be 25 minutes. Using desk top deco software, you generate air dive tables that show that 25 minutes at 165 feet requires 2 minutes decompression at 30 feet, 4 at 20 and 13 at 10 feet. Your ascent rate is 30 fpm. Your SAC rate is .78 cf/min on the working part of the dive and .64 during decompression.

- **Following the rule of thirds, how much of each gas do you need for the dive?**

- **If you have twin 120 cubic foot cylinders with a working pressure of 2400 with 2200 psi of air, how much gas volume do you have?**

Is it enough for the dive?

At what back gas pressure should you leave at the bottom to assure you can complete your decompression and have one third reserve left?

If you have a 50 cf cylinder, working pressure 3000, with 2870psi of oxygen, how much gas volume do you have?

Is it enough for the dive?

- **What are your OTUs and "CNS clock" after the dive?**

- **If you will be diving in three hours, and you will be staying within mission averages for five days of diving, how much "CNS clock" time and how many OTUs can you have on the second dive?**

Student Diver statement: I've reviewed the questions I answered incorrectly or incompletely and I now understand what I missed.

Signature _____ Date _____