Surface Facilities for Oil and Gas Handling

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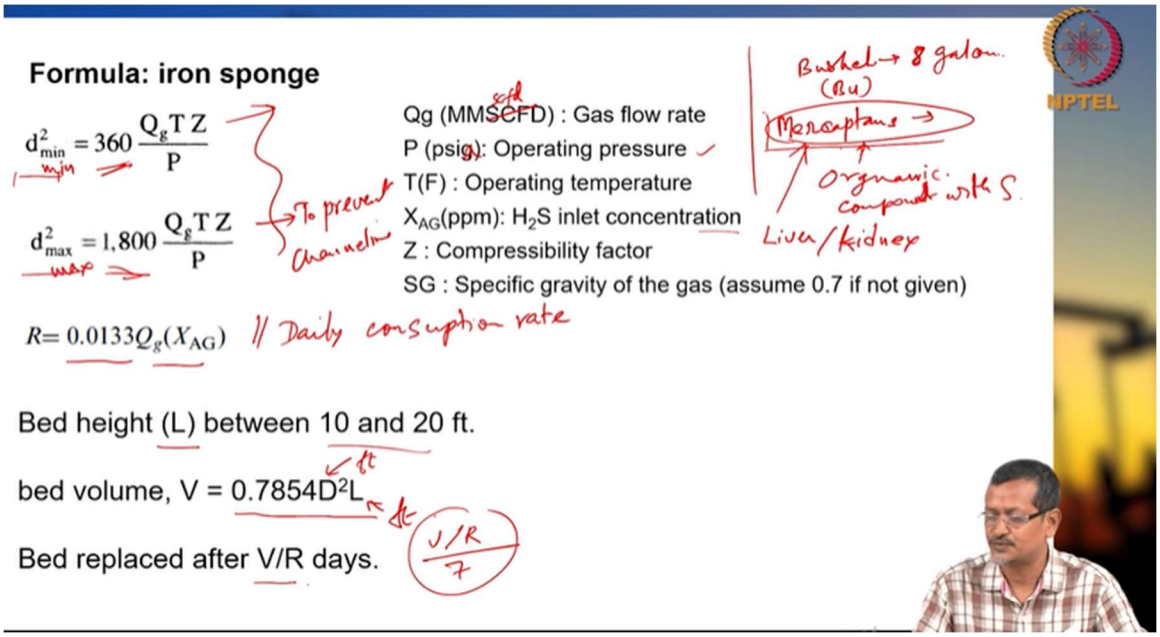
Amine System For Gas Sweetening-02

Now, we will try to calculate the iron sponge. So, the iron sponge is also used for removing H 2 S or a sour gas H 2 S or sour gas. So, the minimum diameter of this absorber column will be d min square 360 q g T z by p and d maximum this is min this is maxed 1800 q g T z p. So, the formula is almost the same only the constant term you have to remember is is different 360 1800 q g m m s c f d or you can write s c f d small letters, a gas flow rate p p s I g operating pressure, T operating temperature I think p s I a should be x a g p p m h 2 s z compressibility factor s g specific gravity of the gas. Our formula is this, this is the maximum dia to prevent channeling. If channeling is there then removal of sour gas will not be proper and minimum dia is this one ok.

And daily consumption rate is called daily consumption rate, daily consumption rate, and daily consumption rate R equals 0.0133 q g x a g, x a g is in p p m h 2 s inlet concentration. Select bed height, bed height l, and this bed height should be between 10 to 20 feet bed volume V equals 0.7854 d square l, d will be in feet l in also feet ok.

So, the bed should be replaced after V by R days and if you want to make weeks then V by R divided by 7. So, that will be several weeks after you have to replace the bed. Here more things are there many times we use the term bushel ok. So, a bushel is 8 gallons ok. So, instead of giving a term in gallon normally we give many times we give the values in a bushel.



So, you should remember the bushel. So, many times it will be a little like B u bushel ok. Fuel compound analog analogous to alcohol the acceptance, acceptance also should be removed from gas and acceptance it is very smelly gas and normally this natural gas LPG cylinder coming to your house will not have any smell, but intentionally the companies will be adding acceptance gas. So, there will be some smell if there is any leakage you can capture the leakage using the smell pungent smell. Since natural gas odorless colorless marketplace is used.

So, that they can smell bad and it is corrosive also. So, you cannot add too much. So, that will be too much corrosive for systems ok. This is an organic compound with a sulfur organic compound, compound with sulfur ok. And it will be if the higher amount you take then it will damage it will damage your liver, kidney ok.

It is toxic and flammable also, but it is required just to create a smell in your LPG cylinder for the gas stored in the LPG cylinder. So, if there is any leakage you can capture it. So, we have a problem with iron spawn in an iron spawn you need to remove acid gas. Natural gas flows 2 mm cfd and has a specific gravity is 0.7 an acid gas concentration of 225 ppm an operating pressure and a temperature of 1200 psig 100 degrees Fahrenheit respectively assuming a compressive factor of 0.

85. So, you have to calculate the minimum maximum diameter bed height is 10 feet and the diameter of 24 inches how frequently the bed should be replaced? So, that calculation also you have to do ok. So, assume compressive factor 0.85 ok. Now D min in the previous slide you have seen the D min formula 360 this is from gas velocity this diameter you are calculating 360 Q g T z by T.

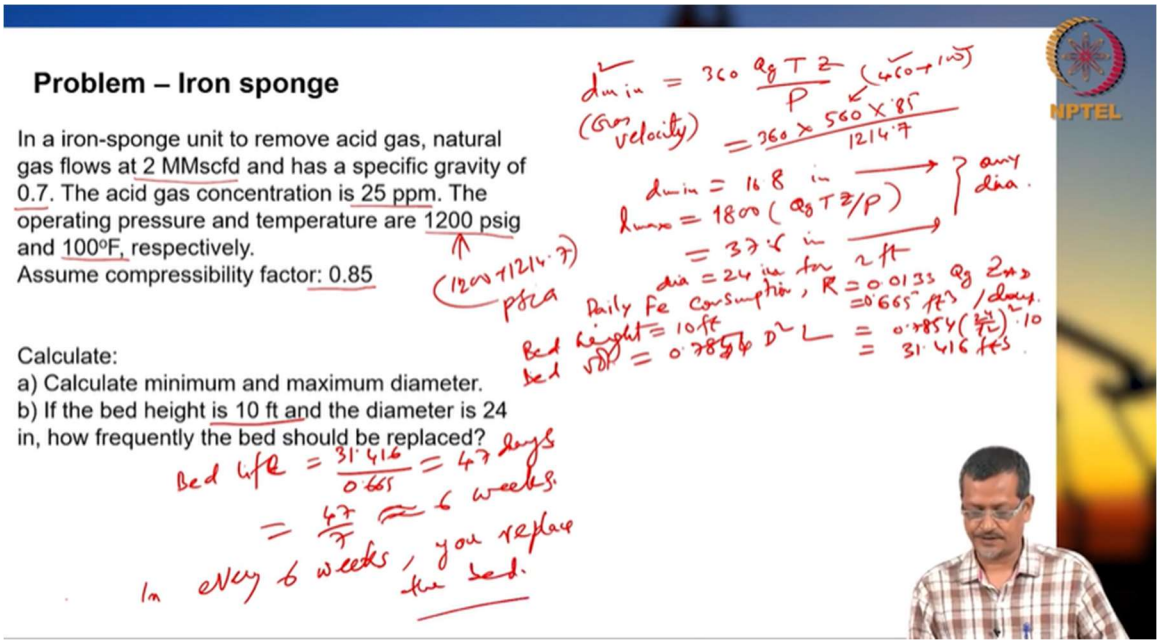
So, for the values if I put 360 into 560, 560 coming like this 460 for plus 100, 100 degree Fahrenheit temperature 460 just to convert into Rankine into desired value 0.85 already given and p value 1214.7 how it is given 1200. So, 1200 plus 1214.

7. So, this is psia psig given. So, you have to convert it into Asia ok? So, this is giving D min square. So, D min will be giving 16.8 inches D max equals 3 D max equals 1800, inches you know the same terms will be coming Q g T z p ok.

So, this value if I put all together will be 37.6 inches. So, therefore, any dia between 16.8 and 36.8 will be taken any dia in between can be taken.

So, let us assume Dia is 24 inches or 2 feet ok? Daily iron consumption. So, for daily iron consumption and daily Fe consumption, the formula R is given 0.0133 Q g X A A D ok. So, this will be giving 0 Q g value is 2 I think yeah 2 mm s f and z value also given 25.

So, all together if you multiply it will come coming 665 cubic feet per day ok? So, bed height assume it is given actually in the problem D bed height is given 10 feet ok. So, if bed height is given 10 feet then bed volume equals 0.7854 this constant is given in the equation you see the equation d square L ok.



So, this is 0.7854 d equals to 24 divided by 12 square into L L is 10. So, this will be giving 31.416 cubic feet ok. Now bed life equals 31.416 whatever you got total volume divided by 0.

665 ok daily consumption rate. So, it is coming in 47.47 days ok. So, 47 divided by 7 equals about 6 weeks ok. So, every 6 weeks in every 6 weeks you replace the bed ok this is the solution.