

Corrosion Tracking Program for Sol III

Background

Commander Grog has brought her ship from Procyon IV to do another detailed investigation of the bipedal omnivore creatures (BOCs) on Sol III. On Procyon IV, His Meritoriousness the Forever Radiant Young and Sublime (HMFRYS) has ordered Commander Grog back to Sol III. On an earlier expedition, Commander Grog's researchers determined that the BOCs made a lot of noise to attract mates. With the growing BOC population, the noise level is going up and the BOCs have constructed special machinery to broadcast their noise into space. Obviously, they must know that there are more BOCs in space they want to attract. HMFRYS and his people (the Tofos) are the acknowledged census keepers of the Spiral Arm Galaxy, but they have had an agonizingly frustrating time trying to locate these other BOCs. So Commander Grog must find out what other planets these BOCs inhabit. A visit back to Sol III is in order.

Commander Grog is not too happy about this assignment. Last time, several of her researchers became very ill due to the corrosive oxygen atmosphere on Sol III. This time she has brought along a team of engineers to construct a monitoring and tracking system to guard the health of her researchers. Each of the researchers, while on the planet's surface, will wear a monitoring device that will send signals back to the orbiting ship. Each time the ship passes overhead, it will pick up the signals from the individual monitoring devices and feed the signals to the tracking program. The tracking program will calculate the corrosive effects on the researcher since the last reading of the signals. These corrosive effects will be accumulated over time until a cut-off value is reached. A warning signal will be issued to the system operator who will order the researcher back to the ship to go through a detoxification before the effects become injurious.

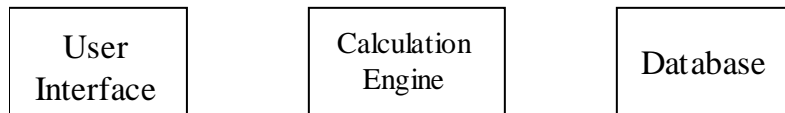
One little problem exists in ordering the researchers back to the ship. The Tofos find any products with alkyl glycosides a particular delicacy and soothing to the gastrointestinal system. The researchers on the planet surface indulge in a little side enterprise of pilfering products with this ingredient, that is, aloe vera antibacterial liquid hand soaps. This side enterprise provides additional income when the researchers get back to Procyon IV and unnecessary curtailment of their sojourns on Sol III are not welcomed.

Commander Grog has ordered the engineers to give her a description of the requirements for the tracking program. The team leader, She Who is Fastidiously Perceptive (SWIFP), has offered to provide the requirements and the design for the program in stages. Stage One will be the requirements for the calculation engine. Stage Two will be the requirements for the user interface. Future stages will be announced. There will be a series of reports to the Commander as work on the program progresses. An overview of the program will accompany each report. The team of engineers has named their program CorTrap.

Report 1.0 Dated 8709.17 (Procyon IV Calendar)**Requirements for Stage One****Program Overview**

Diagram 1 shows the first cut at determining the important parts of the corrosion tracking program. This diagram will change as more details of the program are determined.

Corrosion Tracking Program
CORTRAP
(Draft Diagram 1)

**Preliminary Requirements for the Calculation Engine**

The purpose of the calculation engine is to provide an estimate of oxidization for a single individual for a given period of time under given conditions.

The input to the calculation engine is the following:

- time period
- atmospheric pressure
- atmospheric temperature
- O₂ content of atmosphere
- H₂O content of atmosphere
- O₃ content of atmosphere
- body mass of individual

The output from the calculation engine is the single value for oxidization.

The Health of Body Scientists (HOBS) have worked on an algorithm for estimating the oxidation and have coded it into the calculation engine. The coded algorithm has been tested by the HOBS and they are satisfied that it is working. As far as they are concerned, no more work needs to be done on it.

HOBS have also recommended that the cut-off value for individual oxidation should be 1307 BTUs (Burnt Tofo Units). This is the point when the on-planet researcher should be ordered back to the ship.