

The Station

By

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Chapter 1: A Day in the Life

Abe awoke shortly before dawn as was his custom. He laid there in his cot for awhile wishing he could drift off to sleep again, but like every other day since the collapse he wasn't able to do so. After about fifteen minutes of this struggle, Abe got up in frustration. He arose from the cot and disgustedly dressed himself in silence. After, having done so, he opened the hatch of his personal quarters and shuffled into the adjacent control room.

The aroma of freshly brewed coffee filled his nostrils upon entering the chamber. And like a subject that Pavlov would have been proud of, he went directly to his programmable Mr. Coffee that set next to the communications stack and poured himself a cup. He drank a swig of the blisteringly hot bitter tasting liquid. When the cream and sugar ran out some time ago, he'd been forced to get used to black coffee. This had been a real adjustment for him as prior to the termination of his normal life; he refused to drink coffee this way. Faced with black coffee or none at all, he reluctantly chose to make the adjustment. It was one of the many things in his current life with which he was thoroughly displeased.

Abe knew there was nothing he could do about it, so he took another swig and let it go. After a few moments of relishing what little pleasure the coffee afforded him, he took his seat at the comm panel and reviewed the night's comm traffic. It didn't take long really. There were the usual ten pages of automated traffic from the usual sources. There was nothing of note or significance there. He noted them all in his log as if that mattered anymore. But until he was notified otherwise, it was still his job to do, so he did it.

When this task was complete, he rose and picked up his station monitoring clipboard. It took him about thirty minutes to check all of the panels and read-outs that were vital to the operation of this station. And like every other day since the end had come, everything was reading normal. The only blip in this process was that the carbon dioxide scrubbers were reading on the low side of normal. He made a note of it and would check that later. He'd had trouble with that unit before and fixing it had been a real pain, so he didn't want to wait for anything to go wrong with it again.

Feeling a low grade stomach rumble, Abe decided it was time for breakfast. So he descended the two flights of stairs in the station to the kitchen. After having reviewed his options of powdered eggs, or powdered eggs, he didn't feel as hungry. He fixed a small plate of them in the microwave anyway. When they were ready he wolfed down the bland egg flavored salt lumps as quickly as he could. This was largely to minimize the damage it would do to his palate. Whatever was left of his palate he mused to himself darkly.

With his meal, such as it was, completed, he returned to the control room and poured himself another cup of coffee. After having drunk a bit of it, he put it down in the holder that was molded into his comm station. And he picked up his toolbox and headed

off to do his maintenance on this station, and check the scrubbers when he was done. He'd been putting off the maintenance of the fresh water stihl, so he stated with that.

As he'd suspected, this task took up most of his morning. He had to drain the unit completely, take it offline, scrub down the inner liner of the unit and replace all the filters. This process was as tedious as it was time consuming. Scrubbing the inside of the tank took the most time, because of the large amounts of calcium that built up inside the tank. The original maintenance schedule had been to do this once a year. He'd adjusted it downward twice so far and it looked like it was going to end up being a monthly thing now. Abe wondered if there was ever any virtue in buying from the lowest bidder, back when there was a market to buy things from. Having completed his task, he put the stihl back online and moved on.

The rest of the morning was consumed by minor maintenance items. He checked the power plant, the battery pile, tested the diesel generator, and cleaned out as many filters as he could. All in all a fairly satisfying morning's work in the station's bowels. At this point he paused to consider his options, as he sat atop the diesel generator smoking a cigarette. Back in the day, smoking anywhere in the station had been a serious no-no. Now, who was there to complain to him or write him up for it?

The next item on the list was the carbon dioxide scrubber. Not knowing what if anything was wrong, Abe decided to put it off until afternoon. This wasn't out of laziness or some form of indolence by any means, but rather his experience told him that any work on the unit would likely take hours to complete. Plus he wasn't eager to put on the hazmat suit just yet. So he left his tool kit by the entrance to the scrubber, pulled the hazmat suit out of the locker and laid it across his tools and went to lunch.

Lunch required him to climb up the ladders from the maintenance bay to the crew level. Abe swore the older he got the less he liked climbing ladders. When he arrived in the kitchen he selected a frozen Chinese dish from the freezer and micro waved it. It was more flavorful than the eggs, but not by much. He washed it down with a can of orange juice and disposed of his trash. He wasn't sure why he bothered with being tidy and all that, but he did it anyway. It was most likely just an old habit that hadn't acclimated to the new reality yet.

Before tackling the scrubber, he made a pass through the control room. There was nothing of note in terms of comms, just more of the same, which was nothing. The readings on the stihl looked very good. He felt good enough about them, that he dared to hope he'd have enough fresh water for a brief shower tonight. The station's power plant consumed most of the water the stihl made. There was a margin of about 100 gallons on a good day for his personal use. When the stihl got close to needing maintenance that margin nearly went away.

If Abe needed encouragement to go get busy with the scrubbers he got it. The reading had fallen three points since the morning check and was in the upper end of the yellow band. So Abe noted it on the clipboard and got to work. He descended smartly to the maintenance bay. It took him about thirty minutes to don the hazmat suit. Abe hated the damn thing as it was like wearing a full body condom. In no time at all he was inside the scrubber looking it over.

The problem was readily apparent, but perplexing at the same time. The precipitators, which are really nothing more than large bug zappers that remove particulate matter from the recycled air, were full to overflowing with crud. In fact, two

of the four units had gone offline, because of it. He pulled all four units and replaced them from his ready spare stash and brought the system back online. In short order, everything was back to normal. Abe exited the scrubber chamber smartly with all the precipitators in hand and shut the hatch sealing everything up tight behind him.

Once he'd removed the suit and towed himself dry from the sweat, he was able to get a better look at the failed units. He was perplexed, because the amount of material necessary to plug these up just wasn't possible with only him in residence at this site. He did the math on it and came up with the site needing to house thirty people all smoking at the same time and ashing directly into the precipitator for this to occur in the month since he'd cleaned them last. He knew something was wrong; he just wasn't sure what exactly.

Abe collected crud samples from each unit, bagged them up and then cleaned the units vigorously. Once that was done, he carried out the electrical checks to test the units. They all passed with flying colors so he put the units in the storage locker next to the scrubber chamber. He'd have to remember to carry them to the ready spare stash the next time he went into the chamber.

After that was done he was off to the diagnostics lab in the maintenance bay. He flipped on the lights and turned the S7 spectrum analyzer on. This unit had been pushing the older side of things before the world decided to eat itself, and now the device was positively ancient in every way. As the Raytheon unit was warming up, Abe prepped his crud samples for analysis. This amounted to pouring the contents of each bag into a separate vial, and then filling the vial with de-stressed water from a squirt bottle tucked neatly in the prep kit. As he finished prepping the final vial, the analyzer dinged loudly to signify that it was finally ready.

He inserted the vials into the analyzer, set the test run values, and the types of tests he wanted done to the samples. It amounted to testing all four vials against every test battery the analyzer could throw at it. He pressed the green start button and the analyzer informed him that the test would take just over three hours to complete. The dialog then asked where he wanted the report and log files delivered to when it was complete. Abe specified his network drop box and walked away flipping off the lights to the room as he went.

With his daily maintenance routine complete, Abe shifted the bay into its lowest power setting and climbed out of the pit and went to relax for awhile on the crew deck. He took off his boots in the lounge and unzipped his jumpsuit to cool off a bit and relax. Abe selected a movie from the entertainment cube and played it. He couldn't remember the title of it anymore; it was a mindless courtroom drama in black and white about some social injustice or another. The movie was soo serious, and the injustice articulated from Abe's point of view that he was laughing throughout it. The petty things the human race had chosen to fight about back in the day. At the time, it seemed so important, now on the other side of annihilation it just seemed funny.

When the movie concluded Abe switched it off and shifted the unit to pick-up the local automated tape loop broadcast. Abe removed his bottle of bourbon from the cabinet behind him and poured himself two fingers of the dark viscous liquid and lit a cigarette. He needed to unplug a bit or he'd go crazy, or so went the rationalization he used to justify it. Abe wasn't sure it would do much good as he wasn't at all certain he hadn't arrived at the destination.

Chapter 2: Analysis

Abe awoke in the most uncomfortable position possible. He was face down on the table in the lounge while still sitting in his chair. As he slowly and groggily awoke, he realized that the automated broadcast had ended and shifted to a test pattern and was blaring an electronic horn noise. It was this horn noise that had stirred him from his slumber. As he surmised the outcome of his previous evenings unplugging, he guessed he had smoked most of a pack of cigarettes and drank a good portion of the bourbon. It was not surprising that snoozing on the table hadn't been a big deal. Nothing mattered after that much bourbon

He quietly arose and cleared away his mess, put what remained of the bourbon back in the cabinet, and took two Advil from the bottle he carried in his shirt pocket. Abe picked his boots up and shuffled off to his quarters. Abe sat down on the cot in his room and disrobed as he did so he checked his watch and found that it was only about half an hour from when he would usually get up anyway. What was the point of getting into his cot now? He'd be awake again shortly anyway. So Abe completed disrobing and checked the water gauge on the personal shower in his quarters. He was pleasantly surprised as it read out at just over seventy gallons. It was more than enough for a long hot shower. So he took a blisteringly hot long shower and enjoyed every minute of it.

When it was over, he dressed and went to the control room. He cursed the fact that he forgot to prep the coffee pot last night, so he cleaned it out and made some. And while the coffee was brewing he reviewed the night's comm traffic. It was unchanged from the previous day which was nothing new. He dutifully logged it as he was required to. After he completed the task, the coffee signaled it was ready so he poured himself a cup.

As he was enjoying the process of burning his tongue with the coffee, he checked his network drop box. As he expected the crud test results were there waiting for him. Upon casual glance he thought the results were wrong. He double and triple checked them. He even checked the log files to make sure that the analyzer had actually run the tests and it had. If the results were to be believed somehow the crud was biological material from the plant family. It was dandelion petals to be specific.

Abe sat at there for awhile staring at the test results. Dandelion petals in the scrubber precipitators; It just wasn't possible. The station was a sealed and closed system. There were no living plant materials in the station. He'd seen no evidence of contamination in the system and the environmental system showed no problems of any sort. So how could this result be possible?

Abe came to the only conclusion a semi-sane, rational human could; either the sample was contaminated somehow or the analyzer was out to lunch or both. So he issued the commands from the comm station remotely for the analyzer to retest the samples, followed by separating out the de-stressed water and then testing that. The analyzer dutifully accepts his commands and reported the total run time to be just over ten hours. Abe then went off to breakfast.

While Abe sat eating breakfast, more pushing the partially egg flavored salt lumps around the plate than anything else, he couldn't get his mind off the crud tests. He mulled it forward and backward intensely to see if there was another alternative. Frustrated by his lack of progress on finding other alternatives for explaining the results,

Abe decided to approach the situation from a different angle. Assuming the results are true, how could dandelion petals get into the scrubber in enough volume to clog the precipitators in this fashion?

The only conclusion that was possible involved a station seal breach in the ventilation system, most likely near or in the recirculation return ducts that lead into the scrubber chamber. Anywhere else and there would be sensor warnings about high particulate counts in the ducts. This conjecture to be plausible required two things to be true: the return duct sensors at the entrance of the scrubber chamber would have to be dead in such a way as to report back as functional, but were in reality not working, and the atmosphere being drawn in would have to contain dandelions and be free of radiation otherwise other sensors, including his personal dosimeter would be going off.

As he had nothing else to really do, he weighed how plausible the theory was. It was very thin and required a lot of things being true that he felt were highly unlikely. Given that outside world that destroyed itself with nuclear weapons not being highly radioactive being chief among them. Most of the topside sensors that were still functional showed near lethal levels of radiation.

While Abe didn't view it as all that likely, he thought it best to run the possibility down while the analyzer was running the tests. It would likely turn out to be a dead end, but it was something different for him to do and different was as good an idea as anything right now. So Abe rose and disposed of his half-eaten breakfast and returned to the control room, almost excited.

Once he returned to the control room he ran a battery of test on the environmental system. They all came back as he expected. As first he thought the theory was dead in the water. Then an idea hit him, what if there was some interference along the sensor lines. If that was true the interference could monkey with the responses enough to fake a positive response or a good return from the sensor. It was the inherent flaw of positive line sensor wiring.

So Abe ran a series of negative line drop off tests to try to isolate a potential interference source inducing a good signal when there shouldn't be any signals. And sure enough he was getting a signal from the return air ducts at the entrance to the scrubbers. Abe pondered what the interference source could be. It was possible that one of the ventilation fans was causing it.

If ventilation fan number four, (the one nearest the interference), was working, but approaching failure, it could be throwing off lots of interference in the opening stages of its death throes. Abe ran the remote tests on it from the control room. The fan tested in the low side of the green band, so the theory was at least still plausible. A series of on site electrical tests would be necessary to verify it. Abe wasn't thrilled about that prospect, as it would require donning the hazmat suit again. Twice in the suit in as many days, which god did he infuriate in a previous life to earn this hatred he wondered?

He shrugged despondently and resigned himself to putting it on. He stood, drained his cup of coffee, and went to carry out this task.

Chapter 3: The Search

Ventilation fan four on its way to failing, now there was some bad news. If true, it would be a failure that wouldn't be easy to fix. He didn't have any replacement fan motors available to swap it with. He would be forced to make some very difficult choices. Leaving that particular fan out of commission wasn't an option, as that fan was vital to maintaining proper atmospheric levels given its proximity to the CO2 scrubbers. His options would be to remove the number ten fan in the belly of the station and swap it out. This would throw off the air quality down there. He could attempt to repair the fan, this was something he wasn't sure he could pull off. He could also install the portable air rig in place of fan four.

The last option was the easiest to accomplish. It was however problematic. The output of the portable air rig was double that of the number four fan. This would push twice the air volume into the scrubber chamber. As the scrubbers were quite delicate and seemed to fail at the slightest of changes, he wasn't keen on that option. He could try installing the baffling on the air jets of the rig, but he wasn't at all convinced as to whether it would be effective at all.

His other two options were even less appealing. Any attempt to repair the fan would be predicated on what actually failed on the fan. He could repair a wiring or a switching defect rather easily. If the fan bearings were the source of the failure, a potential repair was possible. It depended on how badly the bearings had chewed up the fan in failing. If the windings on the motor were the problem, then fixing it was out of the question. He didn't have the equipment to rewind them in the station.

Swapping out the fan with the number ten fan wasn't an attractive option at all. It would leave the lower levels of the station with poor air quality. He would have to rig the ventilation system to push more air down there to compensate for the lack of a fan. This would in turn put more stress on the overall system and increase the likelihood of another fan failure. Surely it was a Solomonic choice he faced.

So he picked up the tool kit and went to don the hazmat suit. He really couldn't dawdle on acting on this issue. And in no time at all he was standing at the entrance hatch nearest the fan. He took great care to seal the chamber from which he was to enter the ventilation system. With one last check of his own suit's integrity, he pushed off into the task.

He deftly unlocked the hatch by releasing the locking wheel that dogged it shut. He flicked on his flashlight and pushed open the hatch. He cautiously climbed into the ventilation shaft. As he did so, he was astonished by the state of the shaft. Under normal circumstances, the shaft would be clean as a whistle as there was enough air pressure and air movement to blow any particulate through the system and into the scrubber chamber and the subsequently into the scrubber's precipitator units.

This was however not the situation he was confronted by in the ventilation shaft. The walls were covered with a layer of lint, dust, and crud. When it rains it pours he thought disgustedly. It meant he had bigger problems than just the one fan. He would have to check the rest of the system. All of the fans would have to be checked and he'd have to run manual loop integrity diagnostic on all of them. No rest for the wicked he mused.

He reached the fan without incident. In no time at all he had the unit powered down, disassembled, and the problem diagnosed. To some degree, the diagnostic was good news. The fan's windings were excessively dirty and thusly were causing heat

dissipation issues. The motor was otherwise in good shape. All that was needed was a thorough cleaning of the fan, which he did with expert precision. In less than an hour he had the motor cleaned, tested, reassembled, reinstalled, and back online.

As he sat in the maintenance bay after the repair was complete, recovering from his time stuck in the body condom, he knew three things for sure. He had only solved a symptom of the underlying problem. He wasn't sure exactly what the real problem was. And the diagnostic systems built into the station weren't likely to be all that helpful with troubleshooting the real problem. He disgustedly knew that it meant more time in the ventilation system doing visual inspections of its components. This in turn meant more time in the hazmat suit, "Oh goody", he muttered to himself.

Thinking there was no time like the present; to at the very least begin investigating the issue, he walked over to the publications locker, unlocked, opened it, and removed the ventilation system manual. He walked over to the desk in the corner and sat down. He spent the rest of the morning pouring through the manual, reviewing the annotations, and diligently studying the system diagram.

He remembered fondly the time when an issue like this would have been handled by one of the station's A-divers's, (shorthand for auxiliary division member). That division handled virtually every switch, motor, pump, and fan in the station. Back in the day, a problem of this variety would have been handled expertly by this division. But like everyone else, they were all gone now. It was no use dwelling on the past he thought. It wouldn't help him divine the nature of the problem or fix it.

As he poured over copious amounts of ventilation system information he was slowly becoming frustrated. The information was beginning to run together to the point that each diagram and each subsystem description began to look the same. He knew he was approaching the limit of his attention span. Shortly, he would run out of patience, and bad things tended to happen when he did. Realizing there was a mental warning message coming about his proximity to his patience limit in the near term he summoned what remained of his ability to focus and tried to push through a few more pages.

It was at this point that he had an epiphany as he read the details on the hydroponics bay. Honestly, he almost skipped over the section altogether. The station's hydroponics bay had been a total loss as a result of the catastrophe that destroyed the world that had been. There was a cave-in and it had to be sealed off. The tunnels that led from the station to this bay had collapsed. This had forced him to seal off all the access points to the bay. As the bay shared the station's ventilation system, it was entirely possible that the crud was coming from a damaged hatch seal that tethered the bay to the station.

His impression of the likelihood of this being the case was reinforced when he remembered that the bay was running a number of dandelion experiments. The details of the experiments were not shared with anyone on the station, so in truth he knew quite little about it. The U.S. Army's office of Biological Research had commandeered the bay about a year before the end. They had sent a scientist to manage the project. The man had been very mum about his work, and hadn't mingled with the station's staff at all. The letter authorizing the work even kept the station's crew from knowing his name. Abe only became aware of the type of work being done, because he helped cart large bags of dandelion seeds into the bay.

The scientist, who the crew had named 'Dr. Frankenstein' for lack of any knowledge of his actual name, had been in the bay when the world came to end. Abe had tried to contact him when the collapse started, but hadn't been able to reach him. All efforts to get him out of the bay or even ascertain his status had failed. It was with some degree of reluctance that he had sealed the bay, but it had to be done.

The broader implications of this situation were all good. A failed seal in the ventilation system could be easily repaired. There was a risk of radiological exposure, but he figured he would cross that bridge when he came to it. A busted hatch could even be repaired by welding the hatch shut. He wasn't an expert at welding, but he'd learned how to do it, necessity being the mother of all things good and bad. With a feeling of confidence and satisfaction for a good morning's work, he set the manual aside. He rose and went to eat lunch as he was quite hungrier than he'd remembered being in a long time.

Chapter 4: Complications

Things had started out well enough. He'd located all the equipment he'd need and pushed off into the ventilation system feeling confident enough. When he climbed down the ladder to the section of the ventilation system that fed the bay things unraveled. He was confronted by a serious problem he hadn't anticipated. There was no way he could of really. What confronted him at the bottom of the shaft was something he could never have conceived on his own. And were his eyes not locked on it, he would have assumed the situation to be some concocted story full of feces and stinking to high heaven.

What he faced was a tangled morass of plant material that filled the final five feet of the shaft between him and the hatches that were sealed to cut off the bay from the station. And to top it all off, he was staring at the single biggest dandelion he'd ever seen. It was easily three feet across. Its petals weren't the bright canary yellow he'd remembered from his childhood. The petals were of a hue as close to white as a plant can produce. He wasn't even an amateur botanist, but he figured he was looking at a mutant or albino member of the dandelion family somewhere. Most likely tinkered with or engineered in some fashion by the US Army for some purpose.

Abe pulled out his portable radiation detector to check for any radiological threats. None of the devices twelve gauges fluttered from background, so he felt safe at least for the present. The situation could pose some long term risks though, especially if the bay's structural integrity was somehow compromised. If the bay was not sealed tight from the outside, then the radiation could leach its way down through the tongs of rock of the mountain about into the station proper.

The only good thing in this situation was that he'd found his problem. The downside was in how to deal with it. Any measure he could devise to counter this plant short of destroying it was doomed to failure. He couldn't simply weld a piece of sheet metal in place to seal the area as this plant looked like it had forced open at least one of the three hatch seals to get this far. Those hatches were two inches thick and could take a direct blast from an artillery shell without yielding. Any sheet metal he could put in place would not be a challenge for it to defeat in the long term.

He was left with the task of eradicating it as the only measure of dealing with it. Virtually all measures the typical gardener might use to deal with this were out. He couldn't burn it or use a toxic chemical on it without fouling the air in the station. The only option would be to cut it out somehow. Given the size of what he was seeing, that task was going to be huge as the plant's weight could easily push half a ton or more. And given he would have to do it largely by hand he wasn't eager to give that a go.

The situation wasn't checkmate by any means, but it was certainly as solid a check as could have been tossed his way by any measure. He eased back away from it and climbed out of the shaft to ponder his options.