

War 108: [OSHA] Petrol/Component Field  
Nevish Line: Grief Mother  
Knight Coalition

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## Abstract

A coalition led by [Knight] between Knight, OSHA, NSR, NOD, the 10th and an assortment of community members was created at the start of war 108. A coal and petrol field were claimed at the start, with a nearby component and salvage field quickly secured at the start of the war. The salvage field in order to sustain the very poor maintenance modifier and the component field in order to both secure the necessary components to produce free public Flood Mk. I Battle Tanks, and to provide the public with an easily usable and accessible recycling center. It's estimated the petrol and component fields refined over 2.1 million components via public recyclers, produced nearly 4.3 million broken components, and supplied enough Ass II, Ass IV and Enriched Oil for the production of 8 Cullen Predator Mk. III Super Tanks, 9 Flood Mk. IX Stain 150mm tanks and 104 Flood Mk. I Battle Tanks.

Type	Quantity
Cullen Predator Mk. III Super Tank	8
Flood Mk. IX Stain 150mm Battle Tank	9
Flood Mk. I Battle Tanks	104

Table 1: Final Tank Produced Count

All Battle Tanks were given away for free.

## 1 Introduction

This document records the general history of events of the facility and rational for significant decisions involving the facility defences and oil distribution. Information regarding grieving clans or players are redacted to avoid witchhunting. More detailed information such as how fluid flow is controlled or how inter-facility resource distribution waste was minimized is not covered in this document. If you have any questions regarding these or similar details, feel free to reach out.

## 2 Defences

### 2.1 Petrol Field

In the original T1 phase, meta pieces were being constructed in defence of the oil field. This had to halt after several days of [REDACTED] members grieving the facility and defences, including building five 3x3 bunker pieces on the ridge line blocking the future T2 oil refinery/defences setup, figure 1. In order to not delay the T2 production of public broken components and recyclers, the petrol field was setup in unfavorable terrain ignoring the grieving bunker cores, as it was unlikely there would be any dev intervention to swiftly clear them. For reference, the reason for the week long persistent grieving was due to denying the [REDACTED] regiment a private minecart rail directly to the crude oil wells that spanned over 600 meters, figure 2. Embarrassingly to admit, I spent more time than was warranted trying to convince them why this was a terrible idea, how they will burn themselves out and offered them significantly better solutions. As predicted, they burned out and decayed 3 weeks later.

The region very quickly entered 'very poor' maintenance modifier as expected. What was not expected was that all three of the subregions the component field was built on were all in 'very poor' modifier, as a very large and confusing facility was created at the triple mines just to the east, figure 3. Given the owning clan's size and the close proximity to a salvage mine, it was unlikely they would quickly decay away and improve the maintenance modifier. Given the difficulty of the build-able terrain, a bleak future of msups, the easy repair-ability of the oil field, and the early success of the



Figure 1: Grief Bunker Cores



Figure 2: [REDACTED]'s demands of a private T1 Minecart rail

western front pushing forward, it was decided that it was worth the risk of a partisan destroying the petrol field in order to save on salvage required to upkeep said defences.

Assuming 1x3 defences surrounding the oil wells and refineries and that the terrain was not a factor, the estimated daily msup cost to protect the field from low level partisans is 376 msups/hour on 'very poor'. This does not include protecting the piping to the component field or the water pipes (as you cannot build on the beach).

If we're to start the msup counter on day 5 (tier 2 unlocked) to the final day of the war (day 36), the additional defences for the oil field would have cost a total of 279,744 msups, equation 1. This is equivalent to 1,398,720 salvage, or 6,993 crates of bmat's worth of labor saved.



Figure 3: Multi modifier reducing facility

$$\begin{aligned}
 msup_{total} &= 376 \frac{msup}{hr} * 24 \frac{hr}{day} * 31days \\
 &= 279,744
 \end{aligned}
 \tag{1}$$

For the duration of the entire war, aside from one instance of a partisan destroying a singular water line, and a close call by a solo encumbered flamethrower partisan, there were no instances of partisans affecting the petrol facility. They were preoccupied by nearby facilities with undefended trains and impressive looking but impotent facility complexes. It also helped that the field itself consists of cheap and easy to replace refineries. Should a partisan have taken the time to destroy the field, BT production would remain largely unaffected due to the stockpile accumulated during the T2 phase and secured at the coal BT assembly facility.

## 2.2 Component Field

The defences of the component field consisted of powered standard 1x3 defences, figure 4. A gate on the south side was left open per the wishes of the neighboring defence owners. Throughout the war, landmines were frequently placed to stop any vehicles from attempting to zoom past the AT bunker pieces.

1x3 defences were chosen for the component field as only basic defences were fitting. The field itself had no inherit oversupply or stock as finished materials would frequently be picked up and shipped to the heavily defended main BT facility by train. Also, the recyclers for the majority of the war hovered between 5k-20k damaged components each, with refined components being taken from the recyclers by members of the public on a nearly hourly basis. Adequate spacing was created for easy maneuverability but also for fast repairs/replacement should partisans caused significant damage. Every facility building was stocked with a full anti-infantry kit as well as flasks and gas grenades. Surrounding the component field were scattered private facilities with less defences and significantly more resources pilling up. For these reasons, the component field was an unattractive target to break into and destroy for partisans and why 1x3s were an acceptable defence.



Figure 4: 1x3 Component Base Defences

### 3 Facility Tech Tier Summaries

#### 3.1 Tier 1

(Day 1) Tier 1 consisted of a standard T1 oil setup complete with input and output Mineseeker Tinderboxes. A majority of the petrol produced were by Knight members who provided petrol to the public, even providing petrol to [[REDACTED]] members while other [[REDACTED]] members were griefing and team killing coalition members of the petrol facility. Members of the public were notified both with signs and via region chat that at T2, petrol would not be in abundance as the singular petrol field was also supplying fully operational public component harvesters, public recyclers, Ass IIs and Ass IVs in support of the public BT facility. This unfortunately did not stop a small handful of angry members of the public voicing their opinion rather than being mad at the difficult to access petrol fields with 6 petrol plants burning and utilizing 16 of the 72 watts. Thankfully, most of the public were understanding of the limitations.

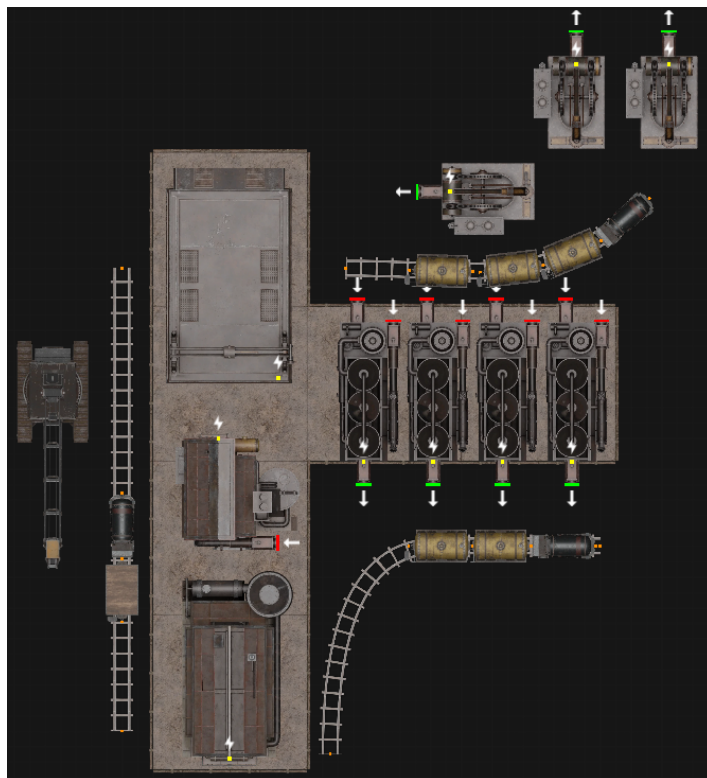


Figure 5: T1 Petrol Configuration

## T1 Notable Features

1. Minecart has access to all three oil wells without need to maneuver. Each Tinderbox is aligned with an oil refinery with the 3rd Tinderbox supplying oil for both the 3rd and 4th oil refinery. Historically a 4th Tinder box at the oil side is placed. Only 3 were used as the rail was too short to allow a 4th to be placed.
2. The petrol-side Tinderboxes are placed at a further distance to the refineries than the oil-side Tinderboxes in order to not override the refueling process of the oil refineries.
3. Power plant is positioned to easily refuel and keep refineries on.
4. When significant oversupply of petrol out paces the public demand, petrol is siphoned to the nearby Forge to get an early production of Ass II.

## 3.2 Tier 2

(Day 5) Within the first 24 hours of T2 unlocking, the refineries and pipes were setup to provide the component harvesters and 5 recycling plants power to be used by the public. Within 36 hours, the rest of the piping to the facility was completed. Minor alterations were done in the following 2 days to optimize the fluid flow and eliminate backlog in the refineries.

Because the facility was to have 0 to minimal defences, the decision was made to build it with a minimal number of clipping pipes. Although this method reduces the number of pipes and foundations required to supply water, should a partisan destroy a refinery the repair process would be difficult, as only a handful of people are familiar with how to reproduce this method. Additionally, due to the nature, flags would have to be placed on several other refineries and pipes in order to fully repair the field. Therefore, in order to secure a speedy repair significant damage occur, a more build friendly layout was chosen for a small increase in msups/hr, figure 6.

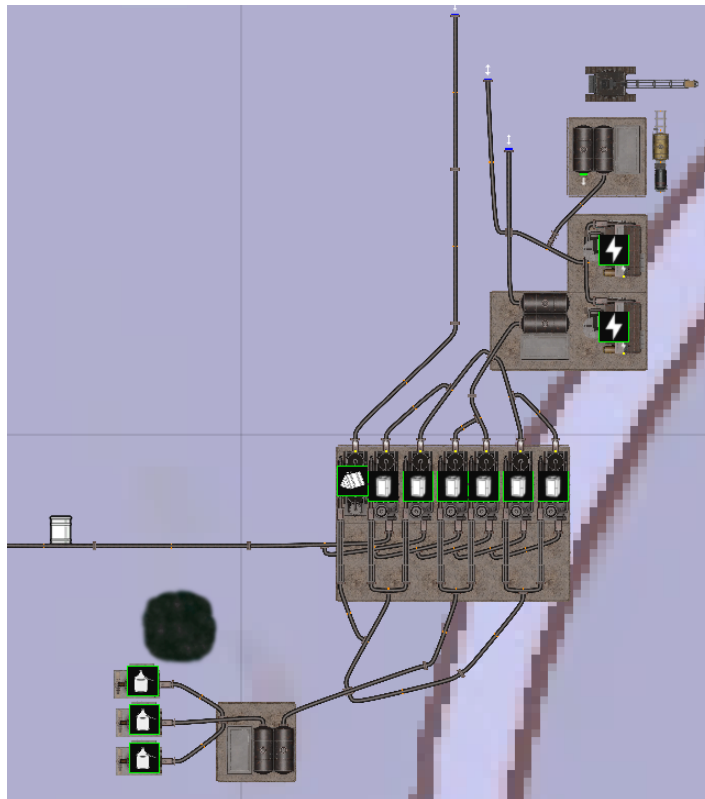


Figure 6: T2 Petrol Configuration (close representation)

From when the final design was placed (day 8) to the start of T3 (day 16), a total of 0 cans of heavy oil backed into the refineries. A total of roughly 600 cans of petrol had backed into the refineries during

Fluid [L/min]		
Oil	Petrol	HOil
337.5	360	29.7

Table 2: T2 Oil Field Production

this time, as it depended on the frequency of how often the public pulled from the broken components. For reference, the 6 petrol refineries during this time produced roughly 114,048 cans of petrol.

This build up would occur during low pop hours. The relatively few built up petrol cans were then dumped into the adjacent LTS to be converted to Ass IIs. In the final day of T2 (day 16), all backed up petrol from the refineries were used and a total of 0 cans of petrol remained in the T2 refineries.

Several iterations of the public LTS piping were experimented with through the T2 phase as public usage was monitored. Figure 7 is a snapshot the distribution in petrol consumption that took place in the initial states of the T2 phase. Blue indicates a readily available petrol or a utility provided by consuming petrol (eg; consuming petrol to produce/refine broken components). Red indicates public petrol that is not readily available but is later supplied in the form of future free BTs once unlocked. Green is what was required to burn to power the oil refineries.

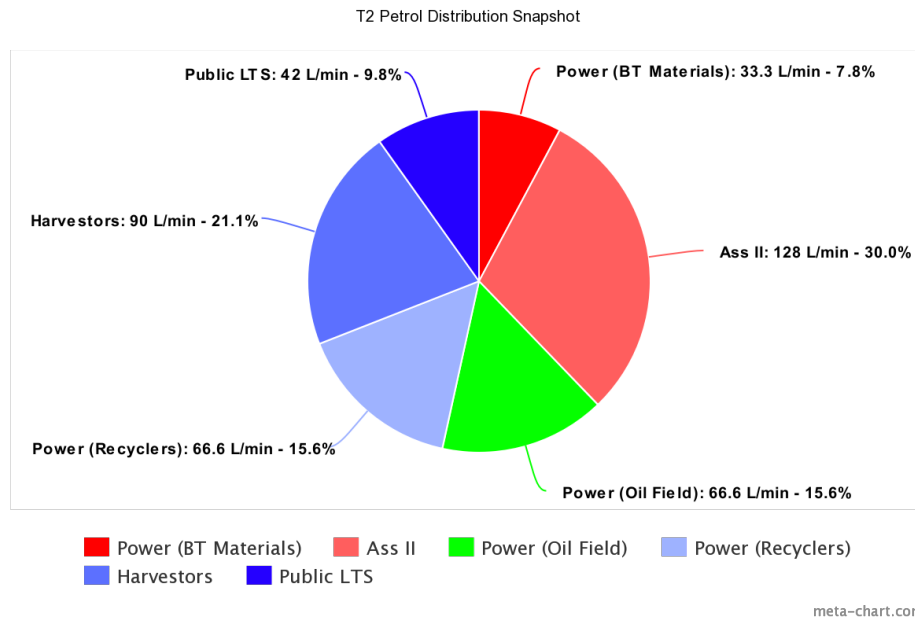


Figure 7: T2 Petrol Distribution (Blue: Readily available public utility, Red: Future BT production, Green: Refinery Power)

The usage of petrol was carefully monitored and care was taken as to not fragrantly burn it in power plants. Below are several features installed to help reduce the waste in petrol power plant burning, as well as other features of the component field.

## T2 Notable Features

1. Power Switch connecting all stationary cranes to the recycle grid. Allowed for the grid to operate on 24/24 Watts with an additional 3W for cranes on standby. When cranes were needed, a recycler was turned off temporarily and switch turned on. Default:OFF
2. Power Switch connecting to the Small Assembly Station: Field Station. Prevents fully loaded grid from overloading should a random player begin production and no facility member is online. Default:OFF
3. Significant maneuverability throughout the facility, both by foot or by truck for accessing recyclers.
4. Neat and orderly layout, making it easy for non-facility experienced members of the public to utilize.
5. Powered Stationary Cranes x2 on component field.
6. Mobile Harvestors x2 provided by facility and stored in concrete walled pen. No Harvester stored inside the pen was lost to a partisan. Harvesters stolen and taken to other fields by fellow Wardens were quickly replaced. Several harvesters were produced and distributed to regional fields on demand.
7. Overlapping double rails at the facility entrance in order to eliminate public road obstruction during loading/unloading of materials via large train on the multi-hex rail loop.
8. Dedicated minecart rails were used for the component field, distributing comps within facility, unloading of Ass II and unloading of Ass IV. Using dedicated minecarts reduces the frustration that comes with minecart rail switches by eliminating them entirely.

## 3.3 Tier 3

Design of the oil field strays from meta layouts. Specifically because of the dynamic loading of the petrol (petrol level depends on public interaction with stationary harvestors and LTS). Therefore while 9 refineries are typically optimal for an "efficient" layout. a 10th refinery was added in order to on the fly alter the percentage of oil being converted to petrol and heavy oil, depending on the demands of the BT facility. For example, if the coalition coal field is unexpectedly in demand of more heavy oil or Ass IVs, then the valve is set to 2.5 L/s to allow maximum oil flow to the heavy oil. Should Ass II instead be in more demand, then the valve is set to 1.7 L/s in order to restrict oil to heavy oil production, and siphon it into the overflow line towards the throttling petrol reformers. Calculations were done to determine that 1.7 was what was minimally required to continue running the sulfuric reactors.

The two oil LTS built work with the previously described valve to control the flow of oil. Oil will prioritize flowing from one LTS to a directly conncted LTS. Once the secondary LTS fills up, the excess oil flows to any branching pipes from that direct connection.

The branching pipe/silo and underground shown in the figure were added after observing that at T3, the pipes cannot handle the max flow of 150 L/min. Having no branches directly from the oil well pipes would cause the wells to slowly fill up with oil, albiet incredibly slowly. To ensure there is never a backlog in oil, the branching pipe and undergrounds were installed.

NOTE: On day 24, a partisan destroyed one water pipe resulting in a build up of oil in the wells to 150 . The issue was resolved within a few hours, but the oil was left inside the wells. On day 26 after a concerned member of the public pointed this out, the wells were emptied in order to show that it was infact not backlogging, but rather just the leftovers of the partisan attack. Aside from this attack and the initial construction phase, the oil never backlogged into the wells for all of phase T2 and phase T3.

A direct access petrol minecart originally was not added to access the reformers. The public petrol LTS frequently was maxed out and rarely had a low supply during the T3 phase. Dispite public

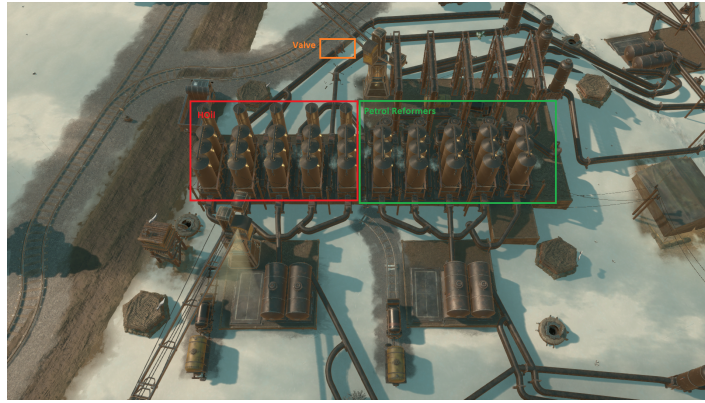


Figure 8: T3 Petrol Configuration

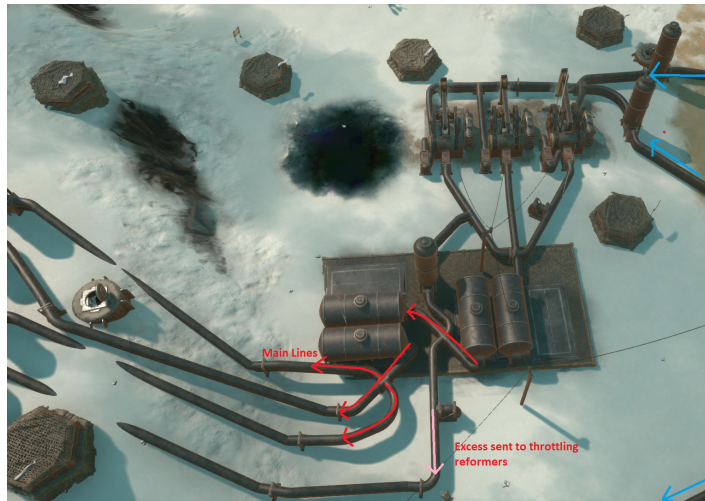


Figure 9: T3 Oil Wells

demand being very light at the end stages of the war, a large train railway and mincart were added to access the petrol reformers. Despite frequent advertising through region chat and map posts, the public did not consume enough petrol to even empty the single public LTS as most of the region is built on the opposite side of the river and rely on the other petrol field by proximity.

Heavy Oil during the T2 and T3 did not backflow into the reformers for the vast majority of the war. It was only until Day 28 that 400 cans of heavy oil built up in the refineries. They were immediately transferred to the LTS and converted to Ass IVs in support of the public BT facility. For reference, during T2 and T3, the estimated produced cans of HOil at Day 30 is roughly 120,009 cans.

The distribution of oil varied depending on the demand. Figure 10 details the oil distribution of the field for the majority of the war. Petrol backflow via broken comps or reduction in Ass II production are publicly accessible by the two mincart rails at LTS and refineries at the oil field.

### T3 Notable Features

1. All features from the T2 build continued onto T3.
2. 10 Refineries instead of the standard 9. Allows for more robust control of petrol/hoil production based on current demands using a valve.
3. 2 [REDACTED]
4. 2 Petrol Chemical Plants were added to support enriched production for BTs.
5. Central Sky crane for easier loading/unloading.

T3 Petrol and Heavy Oil Distribution Snapshot

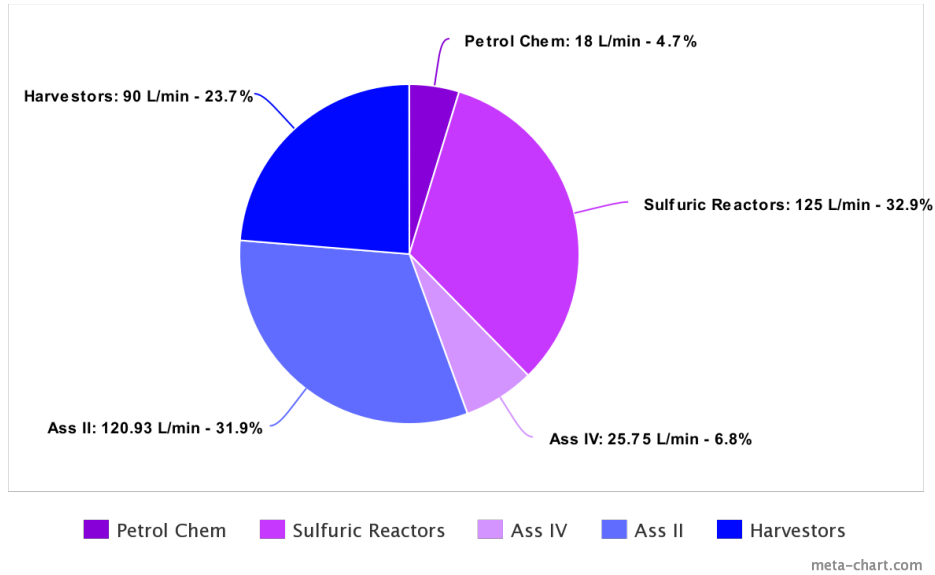


Figure 10: T3 Liquid Distribution (Blue: Petrol, Purple: Heavy Oil)

6. Additional dedicated minecart tracks were added for enriched oil and sulfur extraction.



Figure 11: T3 Comp Facility Layout

### 3.4 Public Recyclers Day 30 output

Recyclers were powered full time with the exception during initial construction. Due to many members of the public opting to take the broken components to a far away private facility to refine, the recyclers were never overloaded and maxed out at 32k. There were a few notable instances in which recyclers would empty due to members of the public completely emptying out the recyclers themselves in order to ship the broken comps to their facility to refine. In one particular case, 40k broken components were taken. They were never processed and the private facility decayed.

Apart from these hiccups, the recyclers themselves were always processing bcomps. Looking at the period between T2 tech unlocking (Day 5) and the end day be Day 30 (when public demand and usage sharply dropped and harvestors left idle), for calculating refined components it is assumed there were



Figure 12: T3 Comp Facility

3 full days in which recyclers were not operational (during construction or when recyclers were not fed broken components)

$$\begin{aligned} comps &= 5recyclers * 22days * 24\frac{hr}{day} * 60\frac{min}{hr} * 13.3\frac{comp}{min} \\ &= 2,106,720 \end{aligned}$$

Assuming the same times of operation for the stationary harvestors

$$\begin{aligned} dcomps &= 3Harvestors * 22days * 24\frac{hr}{day} * 60\frac{min}{hr} * 45\frac{dcomp}{min} \\ &= 4,276,800 \end{aligned}$$

The amount of components exported to the coal field in order to produce 8 SHTs, 9 Stains, and 104 BTs is roughly 1.57 million.

The majority of components gathered is estimated to be 70% gathered and 30% from the recyclers, with the recyclers being prominent during the late stages of the war when public recycler usage dropped significantly.

$$\begin{aligned} comp_{BT} &= 1.57E6 * 0.30 \\ &= 471,000 \end{aligned}$$

Meaning of the estimated 2,100,000 components refined by the recyclers, only 471,000 of it was siphoned from public consumption for tank production.

## 4 Facility Inter-Connectivity to Coal BT Facility

The oil field was specialized to fill the role of supporting the coal public BT facility. Therefore there was no need to create a large train pad and other accessories of our own. Sticking to only the necessary facility buildings also added to the field being less attractive for partisans to hit and there were plenty of other facilities and filled locked component LTSs strewn around undefended by other groups.

Assuming there were no stock of saved up BT materials upon the unlocking of T3 tech, the field would have to produce and export 775 cans of enriched oil, 600 Ass IVs, 3500 Ass IIs, and roughly 100,000 components every day to the BT facility. Therefore, a healthy stockpile was slowly accumulated during the T2 phase in order to allow for 8 BT pads running full time for several days until Thanksgiving break (American Holiday). As stockpiles dwindled, the field through means previously mentioned of altering the oil field valve accommodated for the BT field's demands.

The estimated total components and materials produced are tabled below. Note that for materials produced, these are conservative estimates based on final tank numbers produced. This does not include the leftover stock waiting to be converted to additional battle tanks.

Resource	Quantity
Produced Broken Components	4,276,800
Refined Components	2,100,000
Ass II	58,050
Ass IV	8,995
Enriched Oil (cans)	26,165

Table 3: Minimum resources and materials produced and exported

## 5 Total Salvage Cost per BT

It's commonly stated that BTs cost 17000 salvage. While this is true, the cost of maintaining all the infrastructure to be able to produce the BT is almost always neglected. As a reference, in war 107, there was the [REDACTED] regiment that maintained 2 adjacent petrol fields and a BT assembly facility. Recording their msup/hour costs and observing that only 3 BTs in total were ever made in total at the facility as 6 large pads laid idle for almost the entirety of the T3 phase, it was estimated that the cost of each BT they produced was worth 7.7 million salvage. This should hold as a dire warning for any regiment facility who wants to make an impact in the war, as 23 million salvage would have made a significantly larger impact being put into factory logi. This analysis also does not take into account the potential to save nearby defences and facilities in msups by improving the regional modifier had this regiment not built their facilities.

For our produced BTs this war, the estimated cost per BT is as follows, starting from T2 tech (day 5) and ending at day 35 [REDACTED].

$$\begin{aligned} salvage_{Total} &= 70000 \frac{msup}{day} * 30days * 5 \\ &= 10,500,000 \end{aligned}$$

calculating for salvage cost per BT

$$\begin{aligned} salvage_{BT} &= 10,500,000/104 \\ &= 100,961 \end{aligned}$$

So the conservative cost of salvage per BT is 105,000. This cost would be significantly lower if the 8 SHTs and 9 SPGs also produced be included as BT equivalents in this estimation.

## 6 Public Appreciation

There have been some members of the public that vocally disliked the oil facility. Primarily due to not being familiar with the facility's roll in providing BTs and refined components and limitations given this roll (eg: the inability to become another copy/paste gas station with 50,000 petrol in each refinery). Not all, but many members after explaining the over arching goal understood the limitations and appreciated the effort. Figures 13-15 show some of the many signs of appreciation left at our oil field.



Figure 13: Vocal member of the public

All jokes aside, although I did not psychotically document every time someone said they liked my facility, I can say that there have been a hand full of spontaneous compliments of the recycling center in how organized and easy to traverse it is, both from new and vet players alike. It was very heartwarming seeing literal Pte ranked players understand and use the recycling center by their own choosing. The recycling center itself is riddled with signs pointing players to how to use the recyclers. Figure 14 below is a snapshot at Day 27 of the war of the different clan usage of the recyclers. Figure 15 is an honorable mention of one of many brand new players who quickly learned how to use a recycler with minimal to no input from facility members.

	Non-Coalition	Coalition Members
Hayden retrieved [Components] x 744		[FWG] Hayden
mmf submitted [Damaged Components] x 2,500		[CAF] mmf
Malicious INTent retrieved [Components] x 236		[OUT] Malicious INTent
Hayden retrieved [Components] x 2,040		
fighter erikson retrieved [Components] x 400		[BR] ?
DooMr retrieved [Components] x 380		[Knight] DooMr
DooMr submitted [Damaged Components] x 5,000		
Edison retrieved [Components] x 140		[4thCM] ?
[★] Atroci retrieved [Components] x 1,040		[NSR] [★] Atroci
Malicious INTent retrieved [Components] x 80		
Tenev1k retrieved [Components] x 300		[3rd] ?
Malicious INTent submitted [Damaged Components] x 1,307		
Malicious INTent retrieved [Components] x 400		
BanditoDorito retrieved [Components] x 400		[29MR] ?
Malicious INTent submitted [Damaged Components] x 2,500		
Malicious INTent retrieved [Components] x 2,340		

Figure 14: Day 27 Snapshot of Public usage of a recycler



Figure 15: Recycling Center Honorable Mention: KEGA (PIVA) (Pte)

## 7 Summary

The Nevish Line: Grief Mother Oil field designed by [OSHA] Tearloch and maintained primarily by [OSHA], [NSR], and [Knght] was able to refine over 2.1 million publicly accessible components while supporting a public BT facility producing 8 pads worth of BTs full time (over 10 BTs per day at its peak). Steps were taken to adequately manage power and reduce waste from unused power grids or needless refinery backlog. Additionally, cost benefit analyses were conducted in order to save on labor required for msups and [REDACTED].

### **P.S:**

If a devman somehow reads this, please consider this my 4th appeal to be unbanned on r\foxhole. My user is r\TearlochW96.