**Level Design Document for:**

***AtlantisMegaCorp***™

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# 1.0 Revision History

<As you revise the document, list what was changed and when it was changed>

|  |  |
| --- | --- |
| Version | Description |
| 1.0 | Initial document |
| 1.1 | Made Changes to 4.3 and 7.0. Separated Map Layout into Top Layer and Bottom Layer. |
| 1.2 | Revised the Map design as well as Asset List.  Added a revision Section to the Document. |

# 2.0 level Design Overview

## 2.1 Level Design concept

*This level design is based on the fear of submerged machines or Submechanophobia.*

In our not-so-distant future, the tides have risen so high due to global warming that the whole earth now lies under the ocean.

You - and a few friends – play as employees of AtlantisMegaCorp™ a megacorporation, and humanities last hope at saving earth.

AtlantisMegaCorp™ has designed mega-pump facilities deep under the ocean with the hope of pumping all the excess water into the core of the earth so that humanity may one day return to the land.

You – and a few friends – are in charge of ensuring the pump stays functional and will live out the rest of your days in the submerged facility, repairing the damage, keeping up with increasing demands from your employer, and just trying to stay alive.

The level consists of a fully submerged facility, you – the player – will be swimming around the facility, conserving your oxygen, and repairing any damage that may affect the pumps’ ability to work. Every few minutes the pump will activate, and all players will have to reach a safe room or be sucked into the pump and die. After the pump has deactivated again, a whole bunch of new problems will have appeared from the pump’s activity (muck, broken things, etc.) and you will need to repair them before it is time for the pump to activate again.

## 2.2 Gameplay Mechanics

**Coop:** *You and 3 other players play as 4 employees who have been tasked with keeping the pump running whatever the cost.*

*You will need to cooperate with your fellow players to keep up with the increasing demands of your employer as well as to solve the countless problems you will encounter during your time playing.*

**Beware the Pump:** Every few minutes the pump will begin to activate.

Players in the map will have 30 seconds to get to safety (get inside a room that is sealed with a door) all automatic doors will begin to close during this time.

Once the 30 second warning time is up the pump will begin to suck everything in, this means all objects not in a safe room will be lost.

Players who haven’t gotten to safety will be killed.

**Repair:** The pump is powerful and extremely violent, occasionally large rocks, debris or other objects may get stuck in the pump and will need to be removed in order to keep the pump functional.

Other necessary equipment to your survival may be damaged by the pump too, occasionally your other necessary buildings such as power, oxygen, or the refiner may be damaged and will need repairs.

To repair a damaged building, simply grab the necessary materials from the storeroom and haul them over to the damaged building, a repair animation will begin, and you will be locked to repairing that object for a certain amount of time.

The player may cancel their repair if they find themselves exposed when the pump begins to activate, but they will need to restart their repairs from the beginning when they come back.

**Clean:** When the pump activates, the extreme pressure from the water it pushes deeper into the earth will dig into the earth and create a whole bunch of muck. After the pump deactivates you will have to clean this muck, so that it doesn’t build up and clog the machine.

**Tools:** To repair, and clean you will need a spanner or a shovel, these can be found in the Storeroom.

**Oxygen:** Oxygen is limited and will need to be maintained in the oxygen building.

If a player runs out of oxygen they will begin to drown.

A player may refill their oxygen at the oxygen station.

Moving quickly will drain oxygen faster, so it is wise to not swim around fast unless you really must.

**Control the Pump:** As an employee of AtlantisMegaCorp™ your goal is to keep the pump running. You are obliged to pump a quota of water every day (with the quota increasing as you progress day to day)**.** If you have fallen behind on pumping because of an issue you may have to activate the pump yourself to keep on track of your demands.

To turn the pump on or off manually you may access it in the control room.

**Day Cycle:** The game runs in 10-minute cycles, every 10 minutes begins a new day, with each day bringing more troubles than the last.

Survive as long as you can.

**Doors:** In order to get to safety when the pump activates you will need to get into a room sealed behind a door.

There are 3 types of doors in the game:

* Automatic Doors: These are always open, but close during the warning period of the pump, so get in these fast or be locked out.
* Air Lock Doors: These are always closed but can be opened if powered, they are the slowest door to open (generally not a good idea to go for these doors to seek shelter)

## 2.3 Camera

The Level will take place in First Person, with the player moving the camera around with their mouse and navigating the environment with WASD.

# 3.0 Theme and Characters

## 3.1 Characters

The players fill the role of a mechanic tasked with repairing the underwater engine, not much is known or revealed about the player specifically except for the fact that they work for the AtlantisMegaCorp™ who owns this massive machinery, and it is their task to repair it, keep it running, and pump a certain quota of water each day.

## 3.2 Theme

*The game is set in a modern styled, massive, underwater machine. The level is meant to invoke discomfort and fear.*

*The style I am going for is a spooky scarier version of fallout styled visuals.*

*Pipes will be covered in rust, water will be murky, there will be low levels of light, as well as red and yellow flashing warnings.*

*Machines will rumble to life, shaking the screen, sirens will blare.*

*The player should feel as if they have no control/power, when placed next to the massive fans.*

*This should be a scary game.*

# 4.0 Level Information

## 4.1 Level Location

The level takes place inside of a giant underwater facility. There is a restroom for your characters to spend the night, an oxygen room to resupply on oxygen when low, a control room to control the pump, the pump of course (which acts as your central point of challenge in the game), a storeroom to store important equipment, and a refiner to turn the muck you gathered from the pump into useful materials.

## 4.2 Level Setting

The level is:

* Dark
* very Industrial
* set around 2050’s
* Post-apocalyptic

The environment consists of:

* Water and lots of it.
* Very large machinery that makes the player feel small.
* Lots of Decay and Rust.

## 4.3 Level Layout/Architecture

The level is designed around the central object – the pump – with the other essential buildings all circling it.

The level layout should try and maximize players time spent in the danger zone around the pump, so that it is scarier when the pump begins to activate, and the players have to run for cover.

To maximize the time spent in the danger zone (the inner pump tube) the level has been designed so that:

* Muck only spawns inside the inner tube where the pump is located. This will need to be cleaned regularly or the pump may not work.
* Batteries are located on the outside of the inner tube, dangerously close to the pump, and will need to be repaired regularly.
* Players can only go between the top layer and the bottom layer of the map through the passages located in the inner tube (the tube where the pump is located too)
* To take store refined materials from the refiner in the storage room the fastest passage is to go across the pump, as they are located on opposite sides of the map.
* To repair batteries, oxygen, or the refiner one would need to go from the storeroom and cross the pump.
* Oxygen filled rooms (the safest rooms) are located the furthest away from the central map and are the slowest to access (due to airlock doors) and so are the hardest buildings to reach in case of an emergency.

*The planned Level Design:*

|  |
| --- |
| Diagram  Description automatically generated |
| *Revised Map after Several Changes..* |
|  |

# 5.0 Level Design

## 5.1 Main Objectives

## Every day the players will be tasked to pump X amount of water.

## When the pump is activated, they can see how close they are getting to the objective.

When running, the pump will generate muck inside the inner tube of the pump which will need to be cleaned out before it builds up.

The pump may also get stuck if a large object is pulled inside it, and will need to be repaired, it may also damage other buildings that will need to be repaired.

The player’s main objective is to keep repairing the pump fast enough so that it has enough time to pump the required water for the day.

Every day will be tougher than the last, and if the player fails to meet the daily requirement or dies, they lose the level.

## 5.2 Optional Objectives

Repairing any broken buildings as soon as possible will help the players chance of surviving:

* A dead battery means lights out and automatic doors wont work, but not game over necessarily – however repairing them will increase your odds of survival.
* A broken refiner will mean you can no longer get valuable resources; however, it does not mean game over if you still have resources to spare.
* A broken Oxygen generator will mean you can no longer harvest oxygen, but if you still have oxygen to spare it may not be such a big deal.

## 5.3 WOW Moments

There are no real side missions here, but the Intensity of the pump activating for the first time should be a WOW moment for players.

It should be intense, extremely loud, and shake the screen.

The player should really feel as if their life is on the line.

## 5.4 Level Progression

*Every day is tougher than the last day, the game starts off easy, with just a bit of muck that needs cleaning off the machine each day.*

*On day 2 (10 minutes?) the quota for water pumped will begin to increase as well as batteries will occasionally turn off and need replacing.*

*After day 5 any building may start breaking, and players will need to solve the issues fast if they are to pump enough water during the day to complete the objective.*

## 5.5 Player Experience

Chart, line chart

Description automatically generated*The rush to survive should be driving the player to complete objectives fast, as well as the fear of getting fired if they do not perform their job well enough.*

# 6.0 Art Style and Aesthetics

Refer to the Mood Boards and 2D level Design maps

## 6.1 References

|  |  |
| --- | --- |
| Here Are The Weirdest Things Found In Lakes And Rivers | Bored Panda | Dark Underground Steel Tunnel with Electricity Powered Line of Flashlights  and Huge Fan in the End Stock Photo - Image of industrial, infrastructure:  155552144 |
| submechanophobia with fnaf ambience | NA - Found out I have a Phobia that I assumed everyone had | Pilots of  America |

## 6.2 Lighting

Very Dark and Green. Important locations will have dim lights so that they can be seen underwater.

Red and yellow warning lights will flash in areas that are a danger when the pump turns on.

## 6.3 SFX/Music

Water ambience will be heard all the time.

Loud sirens will play when the pump is beginning to activate.

Loud rumbling of machinery will play when the pump is activated.

Loud rumbling when automatic doors are opening or closing.

A music box will play in the rest room to calm the player it will be old music similar to the 1930’s stuff in fallout.

## 6.4 Particle FX

Machines that are broken from the pump will emit sparks so that they can be easily identified by the player.

# 7.0 Level Asset List

<Static and dynamic objects relative to the environment>

Crossed out Items are Items that have **currently** been removed due to change of scope.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Item | Art | Code | Notes | Priority |
| Inner Tube (No Floor or Roof) | **Inside the tube:**  Rough grey concrete texture, should look old and worn, covered in plant matter as it has been submerged under the ocean for some time now.  **Outside of tube:**  Silver and Brown Metal paneling, with a few dim yellow and green lights blinking, should look as if it stores electronics. Some metal paneling should be a little rusty.  [INDUSTRIAL LOOK] | The outside metal paneling will break periodically when the giant fan activates.  Will need electric spark particle effects coming from the broken panels, so that they may be distinguished from the fixed ones. | Inside the inner tube houses the giant fan, the central zone of the map. | HIGH |
| Middle Tube (with Floor and Roof) | Rough grey concrete texture, should look old and worn, covered in plant matter as it has been submerged under the ocean for some time now.  [INDUSTRIAL LOOK]  Floor and Roof should match the walls | No code Requirements here. | Styled to match the inside of the inner tube. | HIGH |
| Outer Tube (with Floor and Roof) | Rough grey concrete texture, should look old and worn, covered in plant matter as it has been submerged under the ocean for some time now.  [INDUSTRIAL LOOK]  Floor and Roof should match the walls | No code Requirements here. | Styled to match the middle tube and inside of the Inner tube.  2 large doorways will house automatic doors  2 small doorways will house manual doors. | HIGH |
| Wall 2x10 (x2) | Rough grey concrete texture should look old and worn.  Once variation should have patches of ocean plant matter as it has been submerged under the ocean for some time now. | No code Requirements here. | Tall Industrial Walls used inside the storeroom and Refinery. | HIGH |
| Wall 2x3 (x4) | Variation 1:  Rough grey concrete texture should look old and worn.  Variation 2:  Grey Concrete with patches of dark green ocean plant matter.  Variation 3:  Silver or Bronze Metal Version, polished nice.  Variation 4:  Silver or Bronze metal Version, scratches, worn. | No code Requirements here. | Concrete versions used in lower ceiling points of industrial areas: supply closet.  Metallic versions to be used in Oxygen, Control, Restroom. | HIGH |
| 2x2 Floor / Ceiling (x2) | Square patch of Concrete Ceiling.  Dark Grey, Crumbly.  Variations consists of version that is green with plant matter and normal concrete variation |  | Lines the non-cylindrical rooms of the level. | HIGH |
| Large 2x4m Pipe (x2) | 2 versions made of a grey industrial concrete.  Version 1 old and worn, with occasional cracks  Version 2 has patches of dark green ocean plant matter hanging off it in clumps. | No code Requirements here. | Upper-level pathways that lead to Upper rooms and the outer ocean exit | HIGH |
| Large 2x4m Pipe + Doorway (x1) | Same as version 1 of the Large 2x2m Pipe, but with a rounded rectangular door shape cut out of the middle. Edges of doorway should be trimmed with metal sheets. | No code Requirements here. | Doorways that lead to Oxygen, Control and Restroom | HIGH |
| Large Cylindrical Refiners (x2) | Made from large industrial curved plates of Iron bolted together. Base is made of large iron grid with red hot coals below it.  Large Industrial Furnace.  Version on: Red hot Coals in base.  Version off: Black Coals in base. | Muck that is placed here should turn into a random refined material after a certain period.  Can break periodically, in this state the furnace is off, needs refined metal to repair. | The tool players will interact with to turn useless materials into useful materials. Necessary for survival. | HIGH |
| Automatic Door | Large heavy rectangular block made of a bronze-colored metallic substance. | Moves from top to bottom to seal closed.  2 types of doors:  Automatic Doors: will automatically close when pump begins, will open again when safe.  Airlock Doors: Default always closed, must be opened with a button. |  | HIGH |
| ~~Manual Door~~ | ~~Large heavy rectangular block made of a bronze-colored metallic substance.~~  ~~Has a steering wheel shaped handle in the center on the outside side that is used to open. On the inside side has a horizontal bar that locks the door in place.~~  ~~Small window at top of door that can be looked out of, glass is semi transparent dark green / brown.~~ | ~~Player must stand here and manually open the door, takes a few seconds to open.~~  ~~Door swings open horizontally, and will automatically close after a small duration, but can also be closed manually with the press of a button.~~ |  | ~~HIGH~~ |
| Air-Lock Flooring | Metallic sheet flooring, bronze colored – contains several small tubes where it is implied water will funnel out. | Activated when a player interacts with a door on either side, depending on the door it will either fill the current room with water or empty it. | Acts as the transition between water zones and air zones. | HIGH |
| Giant Fan: | A clean, shining, silver metal. 8 sharp blades each 2 meters wide and 15 meters long with a cylindrical knob that holds the blades together. Blades should be at 25° angle. | Will periodically activate, the fan will spin very fast during this time and all objects in water on the map will be dragged towards the fan’s location.  Any object that touches the fan whilst it is activated will be destroyed or killed. | To fit inside the inner tube. A few meters below the lower floor level. | HIGH |
| Oxygen Supply Box | Stack of Metallic Blue Cylinders that look like oxygen tanks that divers wear.  Neat and organized held together in a metal framed crate. | When players interact with the box their oxygen meter should return to full. | Positioned inside the Oxygen room | HIGH |
| Control Panel | Large Panel, Desk Height, made of shiny silver metal panels. Covered in all kinds of levers and buttons with blinking lights of yellow and green, Big Red Button in the very center labeled PUMP | The player can approach the desk and press a button, this will turn the giant fan on if it is off, or it will turn it off if it is on. | Positioned at the end of the Control room. | HIGH |
| Bed (x2) | Rusty bunker like military bunkbed with 2 beds stacked on top of each other, thin grey sheets, no pillow. Made of a dull grey metal bar. | Player can interact with the bed at the end of the day to start the new day. |  | HIGH |
| Shovel (x2) | Rusty shovel with a rusty metal handle. Bronze colored.  -Variation without muck  -Variation with muck piece scooped in the scoop. | Can be picked up in players hand or put down in the environment.  Can be used by player to scoop up muck. | 2 of these start in each supply closet. | HIGH |
| Muck Layer (Cylindrical)  (x4) | Layer of brown mud like substance that can fit and attach to walls on the inside of the inner tube where the fan sits.  Each variation makes a random shape so that they can be removed piece by piece with a shovel. | Can be picked up and removed when interacted with a shovel. | Will fill up the walls of the inner tube after the giant fan as activated. | HIGH |
| Iron Beam | 3m long Iron beam, shiny and clean, silver color. | Can be picked up in players hand or put down in the environment.  Is destroyed when player repairs broken Items. | A few of these will be scattered around the storeroom at the beginning of play. Can be created from refiner. | HIGH |
| ~~Toilet~~ | ~~Dull, Metallic Toilet, Dark Grey colored.~~  ~~Scratches, box shaped with smooth edges, look industrial rather than homey.~~ | ~~Player can interact to sit on the toilet.~~ | ~~Inside the bathroom area of the rest room.~~ | ~~Medium~~ |
| ~~Sink~~ | ~~Dull, Metallic, a rough grey silver, not very reflective. Looks Industrial~~ |  | ~~Inside the bathroom area of the rest room.~~ | ~~Medium~~ |
| ~~Bathroom Mirror~~ | ~~Dull, Metallic, somewhat shiny, but not reflections necessary, rather reflect a silver color.~~ |  | ~~On the wall of the bathroom part of the rest room.~~ | ~~Medium~~ |
| Glass Looking Dome | Dome shaped looking dome for players to look outside into the ocean. Clear panes of window connected through shiny bronze bars. |  | An area the player can walk into in the corner of the rest room. | Medium |
| Warehouse Box (x4) | Boxes of random shapes and sizes, made of a bronze metal, range from bronze colored to green, range from clean looking to rusty. |  | Fill out the storeroom so that it is not so empty. | Medium |
| Oxygen Generating Machine | A bunch of glass cylinders connecting to bronze pipes and grey panels of machinery on the wall. |  | Lines the walls of the Oxygen room. | Medium |
| Storage Shelves | A bunch of black metal shelves with a few horizontal bars to hold up items stored on them. 3 Rows of Shelves. |  | Stored along the walls of the Storeroom and supply closets. | Medium |
| Spanner | A green rusty spanner. | Plays a spanner twisting animation when interacted with an object that needs repairing | 2 of these Stored in each of the supply closets. | Medium |
| Sea Floor | Decorated with colorful coral reefs, debris, and rusted metal bars. |  | Lines the sea floor, only visible from the looking window (so necessary if that exists) | Medium |
| Spare Desks | Large Desks made entirely of bronze. |  | Fill out the control room so that it is not so empty | Low |
| Paper Mess (x4) | Random arrangements of sheets of paper with random scribbles written on them, documents, and binders. |  | Placed on top of the spare desks in the control room. | Low |
| ~~Toilet Paper~~ | ~~A roll of white toilet paper.~~ |  | ~~Positioned next to the toilet in the bathroom section of the rest room.~~ | ~~Low~~ |
| ~~Shower~~ | ~~A shower head made of bronze that sticks out from the wall, with a couple bronze taps to turn on the shower. Walls lined with yellow-creamy square tiles.~~ |  | ~~Positioned somewhere in the bathroom section of the rest room.~~ | ~~Low~~ |
| Rubble Blocks (x6) | Random Chunks made up of bricks, rusty metal beams, and rocks. Flat on the bottom so that they may sit on the flat ground of the facility. |  | Positioned randomly all around the lower level of the facility. | Low |
| Carpet Rugs | Red and Gold Carpets patterned carpets, with splashes of mud footprints stained across them |  | Lines parts of the floor in the rest room to make it a little homier. | Low |
| ~~Music Box~~ | ~~Red and Gold wooden music box.~~ | ~~Plays a song when interacted with.~~ | ~~Positioned in the Rest Room~~ | ~~Low~~ |
| ~~Fish (x6)~~ | ~~An Assortment of small fish of various colors~~ |  | ~~Swimming around the outside of the facility (can be seen through the looking window)~~ | ~~Low~~ |
| Low Beam Caged Red Light | Small half-cylinder shaped red light that has metal bars around it. Needs to be able to mount onto the sides of walls. | Needs to faintly glow red, light needs to swap between on and off gradually when fan is on (using Sine wave) | The main source of lighting on the map | High |
| High Beam Spot Light | A metal cylindrical spotlight that has a stand that can be mounted to walls or the floor. | Needs to project a strong spotlight. Light needs to turn off when power is off. | The secondary source of lighting on the map | High |
| Industrial Painted Signs (x9) | Unreal Decals – Made in Stencil kind of font to look Industrial, should look like chipped and worn as the paint has spent a long lifetime underwater |  | These act as the main way to direct the player around the map | High |
| Iron Bars | Sturdy looking Iron bars arranged in a grid like pattern. Needs to be tile able. |  | Serves as map boundaries. | High |

# 8.0 Delivery Milestones

<Provide milestone dates for Prototype, Testing Phases and Final Build>

**Prototype:** The level was finished being prototyped on the 18/08/2022.

**Testing and Iteration:** The Map was Shown and Tested on the 16/08/2022 and 18/08/2022, and as a result of the showing and tests a few changes to the lighting, signage around the map was changed.

**Final Build:** Final build should be finished by Thursday 18/08/2022

# 9.0 Revisions:

**Change of Scope 16/08/2022:**

* After Showing progress of the game on the 16/08/2022, it became very apparent that the scope of the project would have to change to get the level done it time.

Removed The Supply Closet from the game:

* All Tools that were in the supply closet have been moved into the Storeroom. The storeroom didn’t have a very large purpose in the game, so this saves valuable development time and also makes more use out of the Storeroom.

Removed Manual Doors from the game:

* Manual Doors: These can be opened anytime, but are slow. This is your last second chance to get to safety in case you miss the automatic doors.

Removed the Bathroom from the Cabin:

* This was more of an Aesthetic feature to flesh out the cabins a little more, unfortunately due to time limitations this room had to be cut as it simply didn’t add any gameplay experience for the valuable time it would take to create.

**Improved Navigation 16/08/2022:**

* After Showing progress of the game on the 16/08/2022, feedback received indicated that it was very easy to get lost in the map, as a result *Industrial Painted Signs* were added to the asset list so as to help the player navigate around the map better.