Updated Statement of Requirements

Functional Requirements:
Legend: M = Must Have, S = Should Have, C = Could Have

ID	Description	Notes
UR_start_screen	User shall select four options from the welcome screen (Start, Options, Credits, Quit) (M).	
UR_save_load_quit	The user should be able to quit the game and have the level they have reached saved for when they load it again (M)	Close the game application to quit without saving.
UR_select_level	User shall choose a level to play. (M)	Alternative: Complete games sequentially, restart when last level complete.
UR_pause	User shall pause the game and bring up a menu with options (S)	
UR_minigame	User shall refill water by completing the minigame which will prompt the user to rotate a series of pipes until they form a connection. (M)	The mini game can't be too difficult as this would take away from the main game.
UR_instruct_engines	User shall select and instruct their 2 fire engines - attack the enemy (3 fortresses) and move around. (M)	For this sprint of the game we are only implementing two fire engines and three enemy fortresses, which is less than required for the final game.
UR_seeHUD	User shall see a HUD showing health and water (C)	
UR_enemy	User shall avoid alien patrols whilst playing the game (M)	
UR_end_game_screen	User shall be notified when they win/lose a level, i.e. when the fortress is completely flooded, all firetrucks are destroyed/fire station is destroyed(M)	Alternative: automatically taken back to the fire station.
UR_station_refill	User shall be able to refill and repair Fire Trucks at the Fire Station (M)	
UR_refill_warning	User shall know when they are close to needing to refill or repair. (S)	Notification will not hinder the users ability to see enemies. Notification is via the values shown on screen.
UR_strategy	User shall strategise how to manage and deploy their fire engines.(M)	

UR_attack_notification	User shall be notified when the fire station is about to be destroyed. (M)	
UR_interest	User shall be drawn in by the game, and not be bored. (M)	
UR_fresh_health	User shall be able to start each level with full health (C)	Alternative: they don't and their health level continues on after each level.
UR_ease	User shall be able to understand the game - be able to finish without being confused by mechanics. (M)	
UR_music	Play music in the menu state. (C)	
UR_collisions	The user shall not be able to pass through buildings and other objects, other than other firetrucks. Fire Trucks can pass through fire trucks. (S)	This is because it would make the game boring if the user could just go through obstacles.

Functional Requirements:

ID	Description and *User Requirement* it Links to
FR_display_timer	System shall display a timer - countdown until aliens destroy the fire station. Show when timer is over. **UR_attack_notification**
FR_auto_save	Between levels user's progress is recorded and data shall be saved locally on system. **UR_save_load_quit**
FR_pause_inlevel	System shall be paused during play. This stops all movement of patrols and the timer. Menu pops up with options. **UR_pause**
FR_save_quit	System shall be able to save user progress at the end of the level. We do not save their current state half-way through the level. If they quit the level half way through, they reset themselves upon that level upon revisiting. **UR_save_load_ quit**
FR_auto_repair	Between levels damaged fire engines health are restored back to full automatically. **UR_fresh_health**
FR_unique_engines	Fire engines have unique spec - Volume of water, speed, range, delivery rate, max health. **UR_strategy**
FR_unique_enemy	Enemies will have unique spec - defensive weapons, weapon damage, volume of water needed to flood. **UR_strategy**
FR_level_gimmicks	Levels shall be different to each other and intriguing. **UR_interest**

FR_engine_fire	The user should be able to fire water at enemy patrols and fortresses. *UR_instruct_engines*
FR_alien_move	Aliens should be able to move between a set of positions along the screen. *UR_enemy*
FR_move_towards_station	Aliens should move towards the Fire Station after a certain amount of time. *UR_enemy*
FR_fortress_recover	Fortresses should be able to recover health over time whilst not being attacked. *UR_instruct_engines*
FR_enemies_die	Enemies shall evaporate (disappear) when they come in contact with water and their health is zero. *UR_instruct_ engines, UR_enemy*
FR_engine_destroyed	System shall notify the user when their fire engine is destroyed. *UR_seeHUD*
FR_no_refill	Once the Fire Station has been destroyed, the user is no longer able to refill or repair their firetrucks. *UR_station_refill*
FR_6_levels	The game shall include 6 levels of increasing difficulty. *UR_select_level*
FR_end_game	User wins if they deplete the health of the enemy bases and complete the final level. User loses if all their fire engines are destroyed (all health levels are zero in a level), the fire station is destroyed or time runs out. *UR_ease*
FR_new_level	The system shall take the user back to the level select screen when they have completed a level. *UR_end_game_screen*
FR_open_minigame	When user reaches the refill tile (bottom left corner of the map) the system shall start the minigame. *UR_ minigame*
FR_minigame_play	The user shall rotate the pipes by clicking on them. *UR_ minigame*
FR_minigame_complete	The user completes the minigame if all the pipes are rotated correctly. *UR_ minigame*
FR_minigame_outcome	The user shall only have their water refilled if they complete the minigame. *UR_ minigame*
FR_play_music	The system should play the music when the game enters the menu state. *UR_music*
FR_deny_collisions	The system shall stop the user from moving through obstacles other than fire trucks. *UR_collisions*
FR_game_states	What is displayed on the screen and what the user can interact with is controlled by a game stack. The top of the stack is the current game state that the user is interacting with. **UR_ start_screen, UR_save_ load_quit, UR_select_ level, UR_pause, UR_ minigame**

FR_security	System should be able to store saved progress accurately. **UR_save_load_quit**
FR_precision	Fire trucks positions after being moved should have a small error margin. **UR_instruct_engines**

Non Functional Requirements:

ID	Description	Fit Criteria
NFR_user_ instructions	Instructions for the game should be available to the user. **UR_ease**	
NFR_readability	Users shall be able to read any text easily. **UR_ease**	Text legible from 5 metres away.
NFR_menu_ understandable	Users shall be able to navigate the menu without any prior experience. **UR_ease, UR_startscreen**	Buttons on the menu should operate in < 0.5 seconds. User taken to the next screen.
NFR_artwork	Colour scheme and artwork should be fun and engaging. It shouldn't hinder the users understanding of the game. **UR_interest**	
NFR_user_ interactions	User interactions with the game should be instant. No delay. **UR_instruct_engines**	User actions displayed within <1 second.
NFR_error_ prone	System shall not be broken by glitches. **UR_ease**	9/10 runs of the game should be free of glitches.
NFR_main_ focus	Mini game shouldn't distract the user from the main objective of the game. **UR_minigame**	Should take less than 5 minutes.
NFR_ingame_ warning	Warnings directed towards the user should be easy to understand and read. **UR_attack_notification, UR_refill_ warning**	Text legible from 5 metres away.
NFR_buttons	All buttons should be labelled and have a known purpose to the user and be easily accessible. **UR_ease**	Labels should be legible from 5 metres away.
NFR_timer	User should be made aware when they have limited time left in the game. **UR_attack_notification**	Accuracy of timer should be +/- 0.25 seconds

NFR_operators	System shall be operable by users with any level of gaming experience. *UR_ease*	Clearly labelled with text legible from 5 metres away. Not technical language.
NFR_audit	System shall keep saved files. *UR_save_load_quit*	Keep these files for a day at least.
NFR_resume_ time	System should load a saved game. *UR_save_load_quit*	Acceptable time of 5 seconds
NFR_saved_ content	Saved content will be data about the level that a particular user has reached. Saved content will not include where the user is up to in a particular level. **UR_save_ load_quit**	