



Smart Contract Audit

FOR

Pepe Farm

DATED : 11 May 23'



AUDIT SUMMARY

Project name - Pepe Farm

Date: 11 May, 2023

Scope of Audit- Audit Ace was consulted to conduct the smart contract audit of the solidity source codes.

Audit Status: Passed

Issues Found

Status	Critical	High	Medium	Low	Suggestion
Open	0	1	1	1	13
Acknowledged	0	0	0	0	0
Resolved	0	0	0	0	0



USED TOOLS

Tools:

1- Manual Review:

A line by line code review has been performed by audit ace team.

2- BSC Test Network: All tests were conducted on the BSC Test network, and each test has a corresponding transaction attached to it. These tests can be found in the "Functional Tests" section of the report.

3- Slither :

The code has undergone static analysis using Slither.

Testnet version:

The tests were performed using the contract deployed on the BSC Testnet, which can be found at the following address:

<https://testnet.bscscan.com/token/0xdd7d824551cea5a11a79be16df8b9f93ed0bd242>



Token Information

Token Name: Pepe Farm

Token Symbol: PEPEF

Decimals: 18

Token Supply: 420,000,000,000,000

Token Address:

0xC3665064663d9fCc535BF121aAb4eF5062004D14

Checksum:

994e9c6befef5f38a67c80ed7bfa1d87ab1975e1

Owner:

0x7030aa2347d5dA811a34AD8B1c6D2C03a05b7Db3

(at time of writing the audit)

Deployer:

0x7030aa2347d5dA811a34AD8B1c6D2C03a05b7Db3



TOKEN OVERVIEW

Fees:

Buy Fees: 5%

Sell Fees: 5%

Transfer Fees: 0%

Fees Privilege: None

Ownership: Owned

Minting: No mint function

Max Tx Amount/ Max Wallet Amount: No

Blacklist: No

Other Privileges: changing internal swap settings





AUDIT METHODOLOGY

The auditing process will follow a routine as special considerations by Auditace:

- Review of the specifications, sources, and instructions provided to Auditace to make sure the contract logic meets the intentions of the client without exposing the user's funds to risk.
- Manual review of the entire codebase by our experts, which is the process of reading source code line-by-line in an attempt to identify potential vulnerabilities.
- Specification comparison is the process of checking whether the code does what the specifications, sources, and instructions provided to Auditace describe.
- Test coverage analysis determines whether the test cases are covering the code and how much code is exercised when we run the test cases.
- Symbolic execution is analysing a program to determine what inputs cause each part of a program to execute.
- Reviewing the codebase to improve maintainability, security, and control based on the established industry and academic practices.

VULNERABILITY CHECKLIST



Return values of low-level calls



Gasless Send



Private modifier



Using block.timestamp



Multiple Sends



Re-entrancy



Using Suicide



Tautology or contradiction



Gas Limit and Loops



Timestamp Dependence



Address hardcoded



Revert/require functions



Exception Disorder



Use of tx.origin



Using inline assembly



Integer overflow/underflow



Divide before multiply



Dangerous strict equalities



Missing Zero Address Validation



Using SHA3



Compiler version not fixed



Using throw

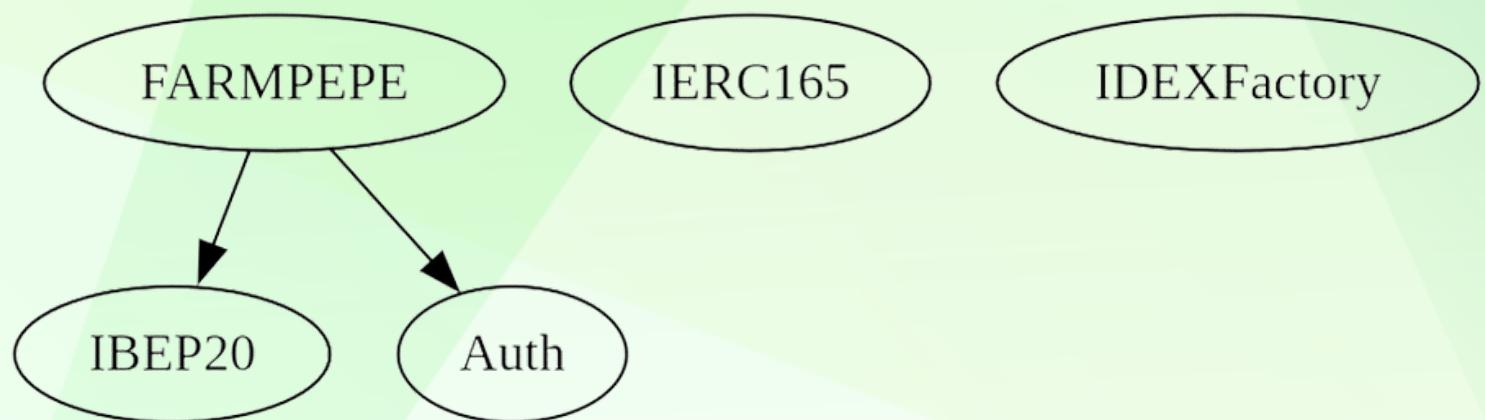
CLASSIFICATION OF RISK

Severity	Description
◆ Critical	These vulnerabilities could be exploited easily and can lead to asset loss, data loss, asset, or data manipulation. They should be fixed right away.
◆ High-Risk	A vulnerability that affects the desired outcome when using a contract, or provides the opportunity to use a contract in an unintended way.
◆ Medium-Risk	A vulnerability that could affect the desired outcome of executing the contract in a specific scenario.
◆ Low-Risk	A vulnerability that does not have a significant impact on possible scenarios for the use of the contract and is probably subjective.
◆ Gas Optimization / Suggestion	A vulnerability that has an informational character but is not affecting any of the code.

Findings

Severity	Found
◆ Critical	0
◆ High-Risk	1
◆ Medium-Risk	1
◆ Low-Risk	1
◆ Gas Optimization / Suggestions	13

INHERITANCE TREE





POINTS TO NOTE

- Owner is not able to change buy/sell fees at current version of the contract (6%)
- Owner is not able to set transfer fee (0%)
- Owner is not able to set max buy/sell/transfer/hold amount
- Owner is not able to blacklist an arbitrary wallet
- Owner is not able to limit buys/transfers/sells by a max amount as limit
- Owner is not able to mint new tokens
- Trades are already enabled



CONTRACT ASSESSMENT

Contract	Type	Bases			
	L	**Function Name**	**Visibility**	**Mutability**	**Modifiers**
DividendDistributor	Implementation	IDividendDistributor			
L <Constructor>	Public	!	●	NO	!
L setDistributionCriteria	External	!	●	onlyToken	
L setShare	External	!	●	onlyToken	
L deposit	External	!	●	onlyToken	
L process	External	!	●	onlyToken	
L shouldDistribute	Internal	●			
L distributeDividend	Internal	●	●		
L claimDividend	External	!	●	onlyToken	
L getUnpaidEarnings	Public	!		NO	!
L getCumulativeDividends	Internal	●			
L addShareholder	Internal	●	●		
L removeShareholder	Internal	●	●		
L setDividendTokenAddress	External	!	●	onlyToken	
FARMPEPE	Implementation	IBEP20, Auth			
L <Constructor>	Public	!	●	Auth	
L <Receive Ether>	External	!	●	NO	!
L totalSupply	External	!		NO	!
L decimals	External	!		NO	!
L symbol	External	!		NO	!
L name	External	!		NO	!
L getOwner	External	!		NO	!
L balanceOf	Public	!		NO	!
L allowance	External	!		NO	!
L approve	Public	!	●	NO	!
L approveMax	External	!	●	NO	!
L saveTokens	External	!	●	devwall	
L burning	External	!	●	NO	!
L transfer	External	!	●	NO	!
L transferFrom	External	!	●	NO	!
L _transferFrom	Internal	●	●		
L _basicTransfer	Internal	●	●		
L shouldTakeFee	Internal	●			
L shouldTakeFee	Internal	●			
L getTotalFee	Public	!		NO	!
L getMultipliedFee	Public	!		NO	!
L takeFee	Internal	●	●		



CONTRACT ASSESSMENT

```
| L | shouldSwapBack | Internal 🔒 | |||  
| L | swapBack | Internal 🔒 | ● | swapping |  
| L | buyTokens | Internal 🔒 | ● | swapping |  
| L | launched | Internal 🔒 | |||  
| L | setFeeReceivers | External ! | ● | devwall |  
| L | setSwapBackSettings | External ! | ● | devwall |  
| L | setTargetLiquidity | External ! | ● | onlyOwner |  
| L | manualSend | External ! | ● | NO ! |  
| L | setDistributionCriteria | External ! | ● | onlyOwner |  
| L | claimDividend | External ! | ● | NO ! |  
| L | getUnpaidEarnings | Public ! | | NO ! |  
| L | setDistributorSettings | External ! | ● | onlyOwner |  
| L | getCirculatingSupply | Public ! | | NO ! |  
| L | getLiquidityBacking | Public ! | | NO ! |  
| L | isOverLiquified | Public ! | | NO ! |  
|||||  
| **Auth** | Implementation | |||  
| L | <Constructor> | Public ! | ● | NO ! |  
| L | isOwner | Public ! | | NO ! |  
| L | isdevwallet | Public ! | | NO ! |  
| L | transferOwnership | Public ! | ● | onlyOwner |  
| L | renounceOwnership | Public ! | ● | onlyOwner |  
|||||  
| **IERC165** | Interface | |||  
| L | supportsInterface | External ! | | NO ! |  
|||||  
| **IBEP20** | Interface | |||  
| L | totalSupply | External ! | | NO ! |  
| L | decimals | External ! | | NO ! |  
| L | symbol | External ! | | NO ! |  
| L | name | External ! | | NO ! |  
| L | getOwner | External ! | | NO ! |  
| L | balanceOf | External ! | | NO ! |  
| L | transfer | External ! | ● | NO ! |  
| L | burning | External ! | ● | NO ! |  
| L | allowance | External ! | | NO ! |  
| L | approve | External ! | ● | NO ! |  
| L | transferFrom | External ! | ● | NO ! |  
|||||  
| **IDEXFactory** | Interface | |||  
| L | createPair | External ! | ● | NO ! |  
|||||  
| **IDEXRouter** | Interface | |||
```



CONTRACT ASSESSMENT

L factory External ! NO !
L WETH External ! NO !
L addLiquidity External ! ● NO !
L addLiquidityETH External ! \$ NO !
L swapExactTokensForTokensSupportingFeeOnTransferTokens External ! ● NO !
L swapExactETHForTokensSupportingFeeOnTransferTokens External ! \$ NO !
L swapExactTokensForETHSupportingFeeOnTransferTokens External ! ● NO !
SafeMath Library
L tryAdd Internal 🔒
L trySub Internal 🔒
L tryMul Internal 🔒
L tryDiv Internal 🔒
L tryMod Internal 🔒
L add Internal 🔒
L sub Internal 🔒
L mul Internal 🔒
L div Internal 🔒
L mod Internal 🔒
L sub Internal 🔒
L div Internal 🔒
L mod Internal 🔒
IDividendDistributor Interface
L setDistributionCriteria External ! ● NO !
L setShare External ! ● NO !
L deposit External ! \$ NO !
L process External ! ● NO !

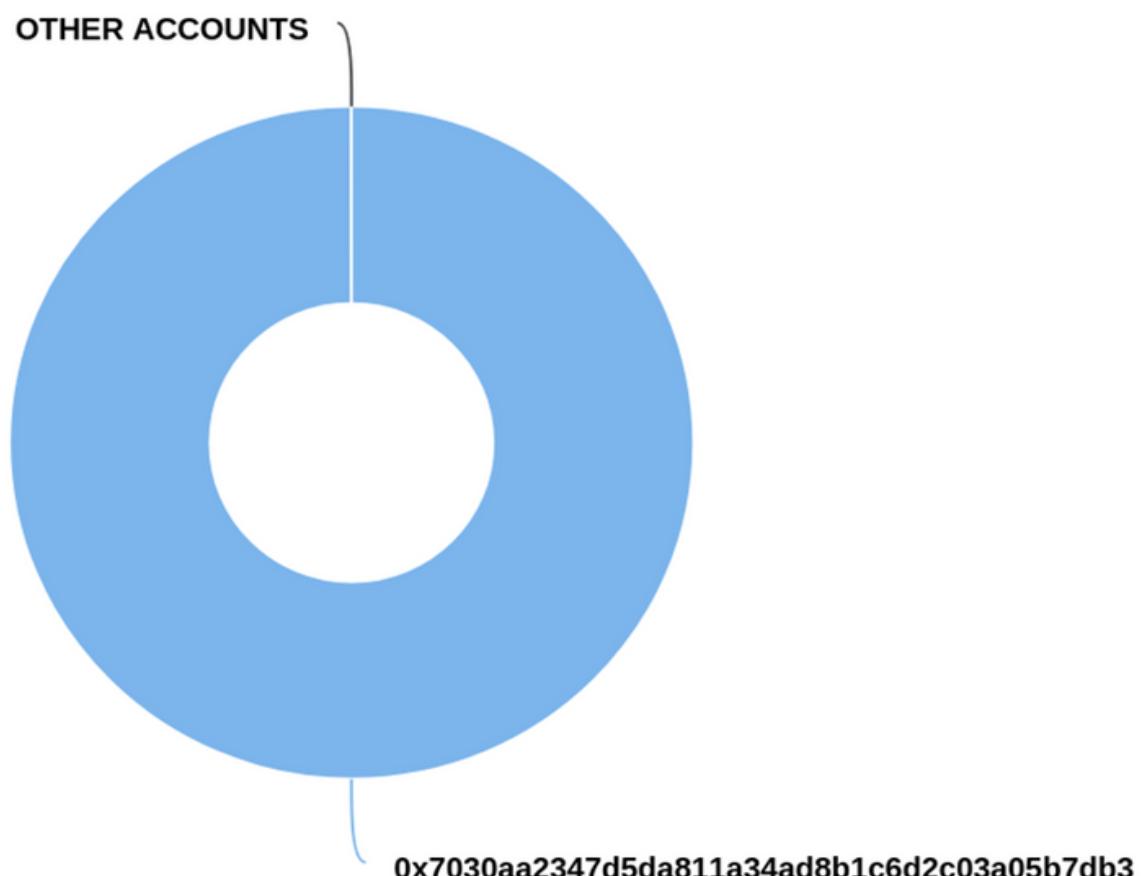
Legend

Symbol Meaning
----- -----
● Function can modify state
\$ Function is payable

TOKENOMICS AT TIME OF AUDIT

Pepe Farm Top 100 Token Holders

Source: BscScan.com





STATIC ANALYSIS

```
FARMPEPE.maxfee (contracts/FarmPepe/Token.sol#246) is never used in FARMPEPE (contracts/FarmPepe/Token.sol#222-753)
FARMPEPE.liquidityTransferFee (contracts/FarmPepe/Token.sol#262) is never used in FARMPEPE (contracts/FarmPepe/Token.sol#222-753)
FARMPEPE.marketingTransferFee (contracts/FarmPepe/Token.sol#263) is never used in FARMPEPE (contracts/FarmPepe/Token.sol#222-753)
FARMPEPE.projectTransferFee (contracts/FarmPepe/Token.sol#264) is never used in FARMPEPE (contracts/FarmPepe/Token.sol#222-753)
FARMPEPE.valueForSwap (contracts/FarmPepe/Token.sol#276) is never used in FARMPEPE (contracts/FarmPepe/Token.sol#222-753)
FARMPEPE.token (contracts/FarmPepe/Token.sol#286) is never used in FARMPEPE (contracts/FarmPepe/Token.sol#222-753)
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#unused-state-variable
```

```
DividendDistributor.WBNB (contracts/FarmPepe/Token.sol#40) should be constant
DividendDistributor.dividendsPerShareAccuracyFactor (contracts/FarmPepe/Token.sol#53) should be constant
FARMPEPE.DEAD (contracts/FarmPepe/Token.sol#227) should be constant
FARMPEPE.REWARD (contracts/FarmPepe/Token.sol#225) should be constant
FARMPEPE.StartTokens (contracts/FarmPepe/Token.sol#284) should be constant
FARMPEPE.TransferFeeDenominator (contracts/FarmPepe/Token.sol#266) should be constant
FARMPEPE.WBNB (contracts/FarmPepe/Token.sol#226) should be constant
FARMPEPE.ZERO (contracts/FarmPepe/Token.sol#228) should be constant
FARMPEPE.totalSupply (contracts/FarmPepe/Token.sol#233) should be constant
FARMPEPE.buyFeeDenominator (contracts/FarmPepe/Token.sol#252) should be constant
FARMPEPE.buyfeeburning (contracts/FarmPepe/Token.sol#253) should be constant
FARMPEPE.liquidityBuyFee (contracts/FarmPepe/Token.sol#248) should be constant
FARMPEPE.liquiditySellFee (contracts/FarmPepe/Token.sol#255) should be constant
FARMPEPE.liquidityTransferFee (contracts/FarmPepe/Token.sol#262) should be constant
FARMPEPE.marketingBuyFee (contracts/FarmPepe/Token.sol#249) should be constant
FARMPEPE.marketingSellFee (contracts/FarmPepe/Token.sol#256) should be constant
FARMPEPE.marketingTransferFee (contracts/FarmPepe/Token.sol#263) should be constant
FARMPEPE.maxfee (contracts/FarmPepe/Token.sol#246) should be constant
FARMPEPE.projectBuyFee (contracts/FarmPepe/Token.sol#250) should be constant
FARMPEPE.projectSellFee (contracts/FarmPepe/Token.sol#257) should be constant
FARMPEPE.projectTransferFee (contracts/FarmPepe/Token.sol#264) should be constant
FARMPEPE.reflectionBuyFee (contracts/FarmPepe/Token.sol#272) should be constant
FARMPEPE.reflectionSellFee (contracts/FarmPepe/Token.sol#273) should be constant
FARMPEPE.sellFeeDenominator (contracts/FarmPepe/Token.sol#259) should be constant
FARMPEPE.sellfeeburning (contracts/FarmPepe/Token.sol#260) should be constant
FARMPEPE.token (contracts/FarmPepe/Token.sol#286) should be constant
FARMPEPE.totalBuyFee (contracts/FarmPepe/Token.sol#251) should be constant
FARMPEPE.totalsSellFee (contracts/FarmPepe/Token.sol#258) should be constant
FARMPEPE.totalTransferFee (contracts/FarmPepe/Token.sol#265) should be constant
FARMPEPE.valueForSwap (contracts/FarmPepe/Token.sol#276) should be constant
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#state-variables-that-could-be-declared-constant
```

```
Auth.devwallet (contracts/FarmPepe/auth.sol#11) should be immutable
DividendDistributor._token (contracts/FarmPepe/Token.sol#31) should be immutable
DividendDistributor.router (contracts/FarmPepe/Token.sol#41) should be immutable
FARMPEPE.Project (contracts/FarmPepe/Token.sol#280) should be immutable
FARMPEPE._maxWalletToken (contracts/FarmPepe/Token.sol#236) should be immutable
FARMPEPE._circulatingSupply_ (contracts/FarmPepe/Token.sol#234-235) should be immutable
FARMPEPE.distributor (contracts/FarmPepe/Token.sol#290) should be immutable
FARMPEPE.launchedAt (contracts/FarmPepe/Token.sol#282) should be immutable
FARMPEPE.launchedAtTimestamp (contracts/FarmPepe/Token.sol#283) should be immutable
FARMPEPE.pair (contracts/FarmPepe/Token.sol#279) should be immutable
FARMPEPE.router (contracts/FarmPepe/Token.sol#278) should be immutable
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#state-variables-that-could-be-declared-immutable
```

**Result => A static analysis of contract's source code has been performed using slither,
No major issues were found in the output**



FUNCTIONAL TESTING

1- Adding liquidity (**passed**):

<https://testnet.bscscan.com/tx/0x00b8f44ea1d3582abcbcbfd8e09adcf76e790ab08d95be998f56dafc0ce93a6b>

2- Buying when excluded from fees (0% tax) (**passed**):

<https://testnet.bscscan.com/tx/0xc4c97bdcf80ea4a71a669096892a7f746252ed6e4770411640066ee61a414208>

3- Selling when excluded from fees (0% tax) (**passed**):

<https://testnet.bscscan.com/tx/0x1362f04d9af9f3e41b0046ba841633051c5a30da3bf0a126ff79f99046102263>

4- Transferring when excluded from fees (0% tax) (**passed**):

<https://testnet.bscscan.com/tx/0xcf84bdc9a09513941c42c2e9ad956f728dc67561ac0f1ff5d18cc475fc92117b>

5- Buying when not excluded from fees (6% tax) (**passed**):

<https://testnet.bscscan.com/tx/0x0127283290deacf3de790388abf5b911c489859b860ad230482acf4c5efa1ba0>

6- Selling when not excluded from fees (6% tax) (**passed**):

<https://testnet.bscscan.com/tx/0xa1b23ce451ec3091f126ad4d1ffac5f2fa9f58c467f4055e5230ecef9ec5a1a0>



FUNCTIONAL TESTING

7- Transferring when not excluded from fees (0% tax) (passed):

<https://testnet.bscscan.com/tx/0x9e519884ebd73cfb4731bd902e206c31461f492f8fd214b71628fe3233b1e065>

8- Internal swap (passed):

fee wallets received BNB + Burning

<https://testnet.bscscan.com/tx/0xa1b23ce451ec3091f126ad4d1ffac5f2fa9f58c467f4055e5230ecef9ec5a1a0>



MANUAL TESTING

Logical – Setting swap threshold to 0 or too high

Severity: **High**

function: setSwapBackSettings

Status: Not Resolved

Overview:

If swapThreshold is set to 0 and there are 0 tokens in the contract, the sell/transfers would be failed for both owner of the contract and holders of the token (everyone). Additionally if swapThreshold is set to a very high value, trade slippages would be increased significantly

```
function setSwapBackSettings(  
    bool _enabled,  
    uint256 _amount  
) external devwall {  
    swapEnabled = _enabled;  
    swapThreshold = _amount;
```

Suggestion

To mitigate this issue make sure that swapThreshold is always greater than 1/1000000 and less than 1% of total supply.



MANUAL TESTING

Logical – dev wallet can not be transferred

Severity: Medium

Status: Not Resolved

Overview:

There is a function to change the owner, but devWallet (which has significant control over contract) can not be changed.

Suggestion

To mitigate this issue implement a function to be able to transfer devWallet as well.



MANUAL TESTING

Gas – Redundant code

Severity: Low

Status: Not Resolved

Overview:

There are many sections of the code that do not have any use in the contract and are disabled for ever this includes:

- isOverLiquified
- getLiquidityBacking
- setTargetLiquidity
- launched
- sections of swapBack function that are related to auto-liquidity
- all the codes related to max wallet and time lock

Suggestion

To mitigate this issue, delete all redundant sections of the code



MANUAL TESTING

Suggestions

- Change name of **savetokens** function to something that identifies its action, like “withdrawTokens”
- There are two functions that are doing exact same thing. One of this functions can be removed; **shouldTakeFee**, **shouldTakeFee**
- Redundant function : **buyTokens**
Event if burn and contract are not receiving any tokens (from tax) a Transfer event is still emitted, this may cause confusion for investors
- ```
emit Transfer(sender, address(this), feeamount2);
emit Transfer(sender, DEAD, amounttoburn);
```

Some features are disabled in the contract, like auto-liquidity – burns and rewards, having redundant code related to this features only increases gas usage with no purpose

Fees can not be changed, consider adding a function to be able to change fees within a safe range

## Gas optimizations

Define **router** variable as constant

- Define **pair** variable as constant
- Define **REWARD**, **WBNB**, **DEAD**, **ZERO** as constant variables  
Redundant code here:

```
_balances[Project] = (_totalSupply * 100) / 100;
```

- Can be changed to

```
_balances[Project] = _totalSupply;
```

Redundant code at **\_transfer** function

```
if (sender != pair && !isOwner(sender)) {}
```

- Redundant code at **\_transfer** function, since **emergBlock** is always set to true

```
if (!authorizations[sender] && !authorizations[recipient]) {
 require(emergBlock, "Trading not open yet");
}
```



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