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AuditAce
FROM INCEPTION TO SUCCESS

Smart Contract Audit

FOR

PEPE WITH PEARL EARRING

DATED : 15 October 23'

MANUAL TESTING

Logical – Setting swap threshold to zero may revert swaps on internal swap
Severity: High
function: updateSwapTokensAtAmount
Status: Acknowledged by owner
Alleviation:
We have no plans to change swap threshold using 'UpdateSwapToTokensAtAmount' in our project. As evidence of our commitment, we have implemented a 51% liquidation and a 49% buyback feature. Furthermore, the liquidation is locked for a period of 365 days.
we will also renounce ownership of the contract after its launch.

Overview:
Setting swapTokensAtAmount to zero may revert sell (PEPEEARL => BNB) or wallet to wallet transfers. This is because contract will try to perform internal swap with 0 tokens as input.

```
  function updateSwapTokensAtAmount(uint256 amount) external onlyOwner {
    require(
        amount <= 1000000,
        "Cannot set swap threshold amount higher than 1% of tokens"
    );
    swapTokensAtAmount = amount * 10 ** _decimals;
  }
```

Suggestion
Ensure that swapTokensAtAmount is always greater than zero

```
  function updateSwapTokensAtAmount(uint256 amount) external onlyOwner {
    require(
        amount <= 1000000,
        "Cannot set swap threshold amount higher than 1% of tokens"
    );
    require(amount >= totalSupply() / 100000 * 10 ** _decimals(), “new swap threshold must be higher than 0.00001% of total supply”);
    swapTokensAtAmount = amount * 10 ** _decimals;
  }
```

Alternatively, you can use a try-catch block when calling pancake swap router

```
try
router.swapExactTokensForETHSupportingFeeOnTransferTokens(
            tokenAmount,
            0, // accept any amount of ETH
            path,
            address(this),
            block.timestamp
)
{} catch {}
```

AUDIT SUMMARY

Project name – PEPE WITH PEARL EARRING

Date: 15 October 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	0	0	0	0
Acknowledged	0	1	0	0	0
Resolved	0	1	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/0xFfD18E092508C01B5D07db8a23F31A3eD4E91469

Token Information

Token Address :
0xCf3eD1d49134fB015bd4b919Cd7ae41Dda0581D9

Name: PEPE WITH PEARL EARRING

Symbol: PEPEARL

Decimals: 9

Network: Binance smart chain

Token Type: BEP20

Owner: 0x1b7963FdD0f57ED7A12570d4B260d19401A3e9B4

Deployer: 0x1b7963FdD0f57ED7A12570d4B260d19401A3e9B4

Token Supply: 100,000,000

Checksum:
51599f7ac46156632bb42ac8e11439bbf74cc982

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TOKEN OVERVIEW

buy fee: 3%

Sell fee: 3%

transfer fee: 3%

Fee Privilege: Static fees

Ownership: Owner

Minting: None

Max Tx: None

Blacklist: No

Other Privileges:

- Initial distribution of the token
- Modyfing internal swap thershold

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 isexercised 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

- [x] Return values of low-level calls
- [x] Private modifier
- [x] Multiple Sends
- [x] Using Suicide
- [x] Gas Limitand Loops
- [x] Address hardcoded
- [x] Exception Disorder
- [x] Using inline assembly
- [x] Divide before multiply
- [x] Missing Zero Address Validation
- [x] Compiler version not fixed
- [x] **Gasless Send**
- [x] Using block.timestamp
- [x] Re-entrancy
- [x] Tautology or contradiction
- [x] Timestamp Dependence
- [x] Revert/require functions
- [x] Use of tx.origin
- [x] Integer overflow/underflow
- [x] Dangerous strict equalities
- [x] Using SHA3
- [x] Using throw

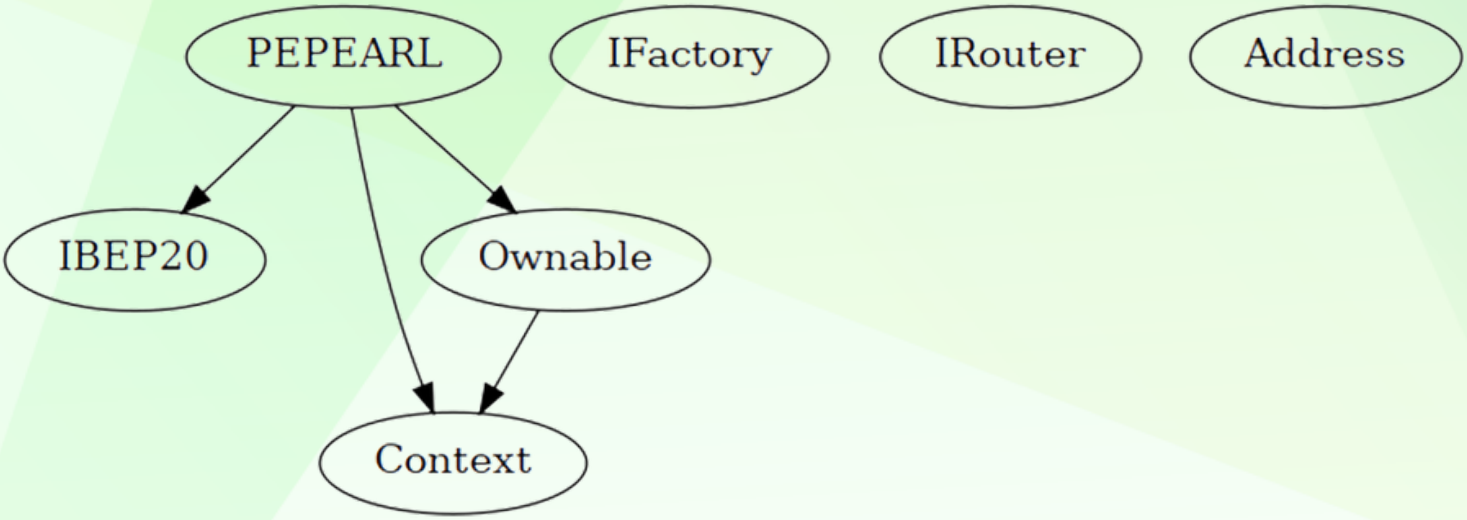
CLASSIFICATION OF RISK

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	2
Medium-Risk	0
Low-Risk	0
Gas Optimization / Suggestions	0

INHERITANCE TREE



POINTS TO NOTE

- Owner is not able to adjust buy/sell/transfer fees (3% each)

- Owner is not able to blacklist an arbitrary wallet

- Owner is not able to disable trades

- Owner is not able to mint new tokens

- Owner must enable trades manually (trades already enabled)

STATIC ANALYSIS

```
INFO:Detectors:
PEPEARL._rTotal (contracts/Token.sol#168) is set pre-construction with a non-constant function or state variable:
        - (MAX - (MAX % _tTotal))
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#function-initializing-state
INFO:Detectors:
Pragma version^0.8.17 (contracts/Token.sol#10) allows old versions
solc-0.8.17 is not recommended for deployment
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#incorrect-versions-of-solidity
INFO:Detectors:
Low level call in Address.sendValue(address,uint256) (contracts/Token.sol#129-140):
        - (success) = recipient.call{value: amount}() (contracts/Token.sol#135)
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#low-level-calls
INFO:Detectors:
Function IRouter.WETH() (contracts/Token.sol#105) is not in mixedCase
Struct PEPEARL.valuesFromGetValues (contracts/Token.sol#205-219) is not in CapWords
Function PEPEARL.EnableTrading() (contracts/Token.sol#373-378) is not in mixedCase
Parameter PEPEARL.updatedeadline(uint256)._deadline (contracts/Token.sol#380) is not in mixedCase
Parameter PEPEARL.updateSwapEnabled(bool)._enabled (contracts/Token.sol#796) is not in mixedCase
Parameter PEPEARL.rescueAnyBEP20Tokens(address,address,uint256)._tokenAddr (contracts/Token.sol#808) is not in mixedCase
Parameter PEPEARL.rescueAnyBEP20Tokens(address,address,uint256)._to (contracts/Token.sol#809) is not in mixedCase
Parameter PEPEARL.rescueAnyBEP20Tokens(address,address,uint256)._amount (contracts/Token.sol#810) is not in mixedCase
Constant PEPEARL._decimals (contracts/Token.sol#164) is not in UPPER_CASE_WITH_UNDERSCORES
Variable PEPEARL.genesis_block (contracts/Token.sol#172) is not in mixedCase
Constant PEPEARL._name (contracts/Token.sol#180) is not in UPPER_CASE_WITH_UNDERSCORES
Constant PEPEARL._symbol (contracts/Token.sol#181) is not in UPPER_CASE_WITH_UNDERSCORES
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#conformance-to-solidity-naming-conventions
INFO:Detectors:
Redundant expression "this (contracts/Token.sol#50)" inContext (contracts/Token.sol#44-53)
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#redundant-statements
INFO:Detectors:
PEPEARL.updateSwapTokensAtAmount(uint256) (contracts/Token.sol#788-794) uses literals with too many digits:
        - require(bool,string)(amount <= 1000000,Cannot set swap threshold amount higher than 1% of tokens) (contracts/Token.sol#789-792)
PEPEARL.slitherConstructorVariables() (contracts/Token.sol#143-820) uses literals with too many digits:
        - _tTotal = 100000000 * 10 ** _decimals (contracts/Token.sol#167)
PEPEARL.slitherConstructorVariables() (contracts/Token.sol#143-820) uses literals with too many digits:
        - swapTokensAtAmount = 100000 * 10 ** 9 (contracts/Token.sol#170)
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#too-many-digits
INFO:Detectors:
PEPEARL._lastSell (contracts/Token.sol#159) is never used in PEPEARL (contracts/Token.sol#143-820)
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#unused-state-variable
INFO:Detectors:
Loop condition `i < _excluded.length` (contracts/Token.sol#585) should use cached array length instead of referencing `length` member of the storage array.
 Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#cache-array-length
INFO:Detectors:
PEPEARL._tTotal (contracts/Token.sol#167) should be constant
PEPEARL.deadWallet (contracts/Token.sol#175) should be constant
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#state-variables-that-could-be-declared-constant
INFO:Detectors:
PEPEARL.pair (contracts/Token.sol#162) should be immutable
PEPEARL.router (contracts/Token.sol#161) should be immutable
Reference: https://github.com/crytic/slither/wiki/Detector-Documentation#state-variables-that-could-be-declared-immutable
INFO:Slither:./contracts/Token.sol analyzed (7 contracts with 88 detectors), 47 result(s) found
```

Result => A static analysis of contract's source code has been performed using slither,

No major issues were found in the output

CONTRACT ASSESMENT

Contract	Type	Bases		
└	**Function Name**	**Visibility**	**Mutability**	**Modifiers**
IBEP20	Interface			
└	totalSupply	External ❗		NO ❗
└	balanceOf	External ❗		NO ❗
└	transfer	External ❗	🛑	NO ❗
└	allowance	External ❗		NO ❗
└	approve	External ❗	🛑	NO ❗
└	transferFrom	External ❗	🛑	NO ❗
Context	Implementation			
└	_msgSender	Internal 🔒		
└	_msgData	Internal 🔒		
Ownable	Implementation	Context		
└	<Constructor>	Public ❗	🛑	NO ❗
└	owner	Public ❗		NO ❗
└	renounceOwnership	Public ❗	🛑	onlyOwner
└	transferOwnership	Public ❗	🛑	onlyOwner
└	_setOwner	Private 🔐	🛑	
IFactory	Interface			
└	createPair	External ❗	🛑	NO ❗
IRouter	Interface			
└	factory	External ❗		NO ❗
└	WETH	External ❗		NO ❗
└	addLiquidityETH	External ❗	💵	NO ❗
└	swapExactTokensForETHSupportingFeeOnTransferTokens	External ❗	🛑	NO ❗
Address	Library			
└	sendValue	Internal 🔒	🛑	

CONTRACT ASSESMENT

PEPEARL	Implementation	Context, IBEP20, Ownable		
└	<Constructor>	Public ❗	🛑	NO ❗
└	name	Public ❗		NO ❗
└	symbol	Public ❗		NO ❗
└	decimals	Public ❗		NO ❗
└	totalSupply	Public ❗		NO ❗
└	balanceOf	Public ❗		NO ❗
└	allowance	Public ❗		NO ❗
└	approve	Public ❗	🛑	NO ❗
└	transferFrom	Public ❗	🛑	NO ❗
└	increaseAllowance	Public ❗	🛑	NO ❗
└	decreaseAllowance	Public ❗	🛑	NO ❗
└	transfer	Public ❗	🛑	NO ❗
└	isExcludedFromReward	Public ❗		NO ❗
└	reflectionFromToken	Public ❗		NO ❗
└	EnableTrading	External ❗	🛑	onlyOwner
└	updatedeadline	External ❗	🛑	onlyOwner
└	tokenFromReflection	Public ❗		NO ❗
└	excludeFromReward	Public ❗	🛑	onlyOwner
└	includeInReward	External ❗	🛑	onlyOwner
└	excludeFromFee	Public ❗	🛑	onlyOwner
└	includeInFee	Public ❗	🛑	onlyOwner
└	isExcludedFromFee	Public ❗		NO ❗
└	_reflectRfi	Private 🔐	🛑	
└	_takeLiquidity	Private 🔐	🛑	
└	_takeMarketing	Private 🔐	🛑	
└	_takeOps	Private 🔐	🛑	
└	_takeDev	Private 🔐	🛑	
└	_getValues	Private 🔐		
└	_getTValues	Private 🔐		
└	_getRValues1	Private 🔐		
└	_getRValues2	Private 🔐		
└	_getRate	Private 🔐		
└	_getCurrentSupply	Private 🔐		
└	_approve	Private 🔐	🛑	
└	_transfer	Private 🔐	🛑	
└	_tokenTransfer	Private 🔐	🛑	

CONTRACT ASSESMENT

└	swapAndLiquify	Private 🔐	🛑	lockTheSwap
└	addLiquidity	Private 🔐	🛑	
└	swapTokensForBNB	Private 🔐	🛑	
└	bulkExcludeFee	External ❗	🛑	onlyOwner
└	updateMarketingWallet	External ❗	🛑	onlyOwner
└	updateDevWallet	External ❗	🛑	onlyOwner
└	updateOpsWallet	External ❗	🛑	onlyOwner
└	updateSwapTokensAtAmount	External ❗	🛑	onlyOwner
└	updateSwapEnabled	External ❗	🛑	onlyOwner
└	rescueBNB	External ❗	🛑	onlyOwner
└	rescueAnyBEP20Tokens	Public ❗	🛑	onlyOwner
└	<Receive Ether>	External ❗	💵	NO❗

Legend

Symbol	Meaning
🛑	Function can modify state
💵	Function is payable

FUNCTIONAL TESTING

1- Adding liquidity (passed):
https://testnet.bscscan.com/tx/0x9305d649c7949ba7929c1779cf4bedb75034206b304ff16c9aa5d06c65eda9c1

2- Buying when excluded (0% tax) (passed):
https://testnet.bscscan.com/tx/0xb8f326c8a2a8308f357f65f27a27c68016efce795d15fc4576d2287c8f34ed4c

3- Selling when excluded (0% tax) (passed):
https://testnet.bscscan.com/tx/0x5fbe6dbd35e6150dd1a1f806ff3cd1a4e54448d411e24986cad2e0679456f834

4- Transferring when excluded from fees (0% tax) (passed):
https://testnet.bscscan.com/tx/0x3ccbeac1d1cf7a71c26dc60eb6bfe68d1acf30383d729bf68d2d543027ce0d60

5- Buying when not excluded from fees (tax 3%) (passed):
https://testnet.bscscan.com/tx/0xd2111707cc0ca38c406c2760ba181087b59c7720e2fac918c83bcf5553f53a89

6- Selling when not excluded from fees (tax 3%) (passed):
https://testnet.bscscan.com/tx/0x8222d051dc3f6c274aa1b32b23555a832ef0614f74fb2f9c90fe37fc39fcba80

7- Transferring when not excluded from fees (3% tax) (passed):
https://testnet.bscscan.com/tx/0xd81b5762e897070d139fc0ac484b0061c996066cf940fc3c5051ef45d9c179de

7- Internal swap (Marketing BNB) (passed):
https://testnet.bscscan.com/tx/0xd81b5762e897070d139fc0ac484b0061c996066cf940fc3c5051ef45d9c179de

MANUAL TESTING

Centralization – Enabling Trades
Severity: High
function: EnableTrading
Status: Resolved (Already enabled trades)

Overview:
The **enableTrading** function permits only the contract owner to activate trading capabilities. Until this function is executed, no investors can buy, sell, or transfer their tokens. This places a high degree of control and centralization in the hands of the contract owner.

```
function EnableTrading() external onlyOwner {
    require(!tradingEnabled, "Cannot re-enable trading");
    tradingEnabled = true;
    swapEnabled = true;
    genesis_block = block.number;
}
```

Suggestion
To reduce centralization and potential manipulation, consider one of the following approaches:

1. Automatically enable trading after a specified condition, such as the completion of a presale, is met.

2.If manual activation is still desired, consider transferring the ownership of the contract to a trustworthy, third-party entity like a certified "PinkSale Safu" developer. This can provide investors with more confidence in the eventual activation of trading capabilities, mitigating concerns of potential bad faith actions by the original owner

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```

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