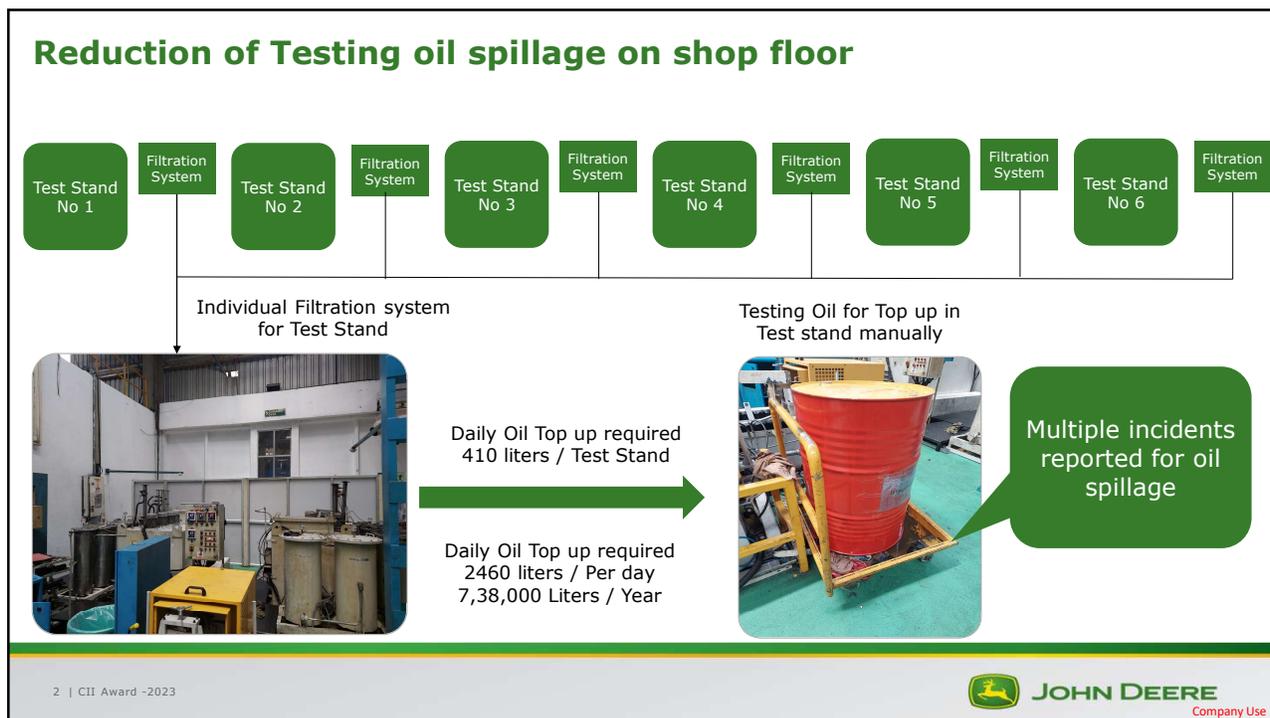




1



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Reduction of Testing oil spillage on shop floor

Earlier Process :

- Transmission Factory has 6 Test Stand with individual filtration system
- Transmission Testing, we do with continuous flushing of testing oil
- Yearly 7,38,000 Lakh liter of testing oil consumed and filtration
- We use more than 600 lit of testing oil per transmission
- There were incidence of oil seepage/spillage from the filtration unit piping, also the filtration cleaning activity need to be done on shop floor, it also involved oil spillage on floor.
- Due to accessibility issue cleaning of confined space was issue.
- During all above activities lot of spillage in shop floor and create unsafe work condition

Why Oil Spillage need to eliminate from Shop Floor:

- Oil spillage is a significant danger for fire incidents in a shop floor.
Flammable properties: Oil is a flammable substance, which means that it can easily catch fire if exposed to an ignition source such as a spark or flame.
- Rapid spread: When oil spills occur, they can spread quickly across a large area, creating a larger fire hazard and increasing the risk of property damage, injuries, or fatalities.
- Difficulty in extinguishing: Extinguishing an oil fire can be difficult, as water can spread the flames and create a larger fire. Specialized firefighting foam or dry chemicals are often required to put out an oil fire.
- Ignition sources: In a shop floor environment, there may be several ignition sources present, such as electrical equipment, welding or cutting equipment, or smoking areas. These can increase the risk of an oil spill igniting and causing a fire.



3

Reduction of Testing oil spillage on shop floor

Impact of Oil Spillage on shop Floor:

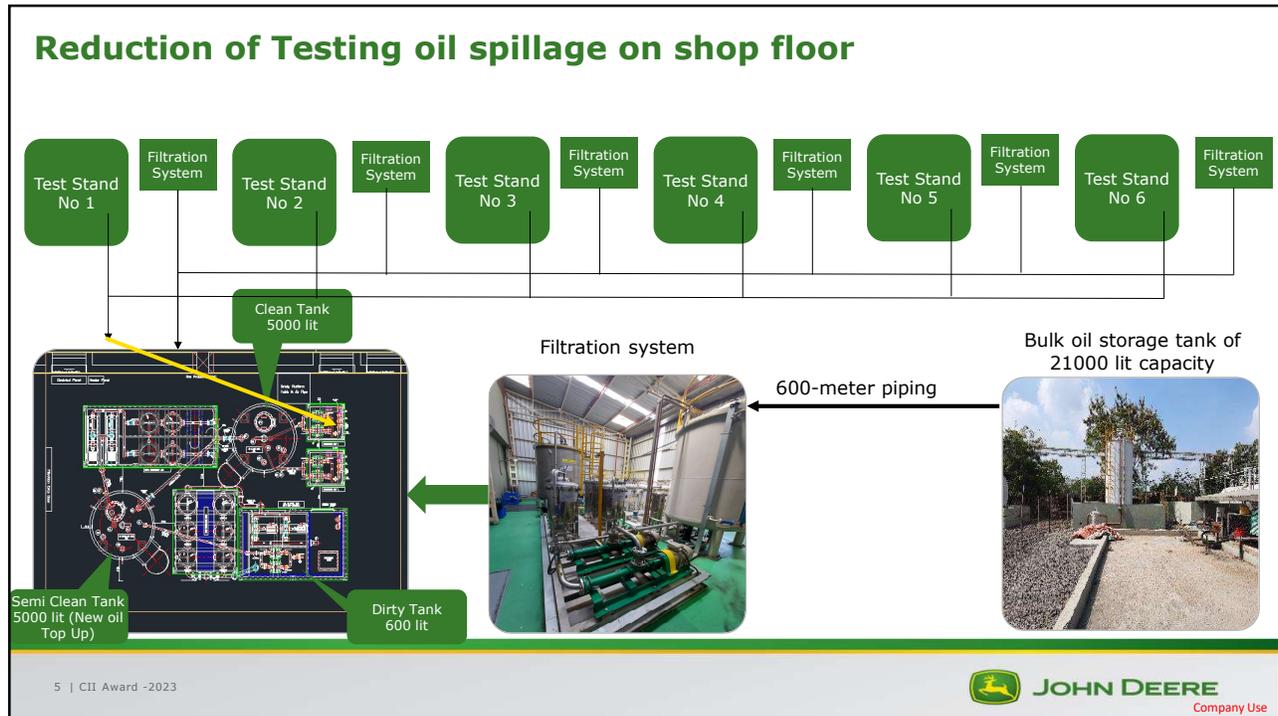
Oil spillage in a shop floor has several negative effects, including:

- **Safety hazards:** Oil spills can create slip and fall hazards for employees, leading to injuries and potential lawsuits.
- **Environmental damage:** Oil spills can contaminate soil and water, leading to environmental damage and potential fines from regulatory agencies.
- **Property damage:** Oil spills can damage equipment and machinery, resulting in costly repairs and downtime.
- **Productivity loss:** Cleanup of oil spills can be time-consuming, resulting in lost productivity and increased labor costs.
- **Reputation damage:** Oil spills can harm a company's reputation, leading to lost business and negative publicity.

Therefore, reducing oil spillage in a shop floor is important to prevent these negative consequences and ensure a safe and healthy work environment for employees and customers. It can also help a company maintain a positive reputation and avoid costly fines and lawsuits.



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Reduction of Testing oil spillage on shop floor

New Process with added advantage :

A centralized filtration system implemented which has a significant impact on reducing oil spillage in a shop floor. Centralized filtration system will help to improve environment and improve safety in shop floor

- Preventive maintenance: A centralized filtration system remove contaminants and impurities from testing oil, extending its lifespan and reducing the need for frequent oil changes. This reduces the risk of spills during the oil change process.
- Minimizing human error: A centralized filtration system automatically monitor and control the oil level, preventing overfilling and reducing the risk of spills caused by human error.
- Quick response to spills: A centralized filtration system quickly detect and contain oil spills, preventing them from spreading and causing further damage. The system also provide alerts to notify personnel to take immediate action.
- Efficient cleanup: A centralized filtration system help to quickly clean up spills by providing tools and equipment such as oil skimmers and absorbents. This reduces the amount of time required for cleanup, minimizing the risk of injury or property damage.

Overall, a centralized filtration system help to reduce the risk of oil spillage in a shop floor, which can have a positive impact on safety, productivity, and the environment. It also help a company save money on maintenance and cleanup costs.

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Reduction of Testing oil spillage on shop floor

Uniqueness of the project:

A centralized filtration system is unique because it provides several benefits that individual filtration systems may not provide.

- Centralized location: A centralized filtration system is at centralized location, which allows for more efficient management and monitoring of the filtration process.
- Customizable design: Centralized filtration systems designed and customized to meet the specific needs of a John Deere shop floor to meet the process requirement. The system tailored to filter out Transmission testing oil contaminants filtration to achieve oil cleanliness to improve testing performance or product performance and ensuring optimal performance.
- Automated monitoring and control: Centralized filtration systems is equipped with sensors and controllers that automatically monitor and control the filtration process. This reduces the risk of human error and ensures consistent filtration performance.
- Reduced maintenance: Centralized filtration systems reduce the need for frequent oil changes, as the system removes contaminants and impurities from the oil, extending its lifespan. This results in less maintenance and lower operating costs.
- Environmental benefits: Centralized filtration systems help to reduce the environmental impact of a manufacturing process by minimizing the amount of oil waste and reducing the risk of oil spills.
- Business Benefits: Oil will be transported through Tanker reducing Transportation cost, Bulk buying discount Rs. 3/Lit. Annual Saving of Rs. 20.5 lacs/Year (DMC 5.8 lacs & AMC cost reduction 14.7 lacs), Return on Investment 2.6 Year (on JD Investment)

Overall, a centralized filtration system is unique because it offers a more efficient, customizable, and automated solution for filtering oil and other contaminants. This result in significant benefits in terms of cost savings, environmental impact, and overall performance.



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Reduction of Testing oil spillage on shop floor

Uniqueness of the project:

A centralized filtration system is unique because it provides several benefits that individual filtration systems may not provide.

- Fire Safety benefits: A fire eye, also known as a flame sensor implemented which provide several benefits when integrated into a filtration system. X
 - Early fire detection: A fire eye detect the presence of flames or heat signatures that may indicate a fire hazard in the filtration system. This early detection can help to prevent fires from spreading or causing extensive damage.
 - Automatic shut-off: When a fire is detected, the fire eye trigger an automatic shut-off of the filtration system, preventing further oil flow and reducing the risk of fire spreading. This can help to contain the fire and minimize the damage.
 - Improved safety: By integrating a fire eye into the filtration system, the risk of fire incidents significantly reduced, improving the safety of workers and reducing the risk of property damage.
 - Compliance with regulations: Many regulations and safety standards require the use of fire detection and suppression systems in industrial environments. By integrating a fire eye into the filtration system, companies can ensure compliance with these standards.
 - Reduced downtime: In the event of a fire incident, downtime can be costly and disruptive to operations. By detecting fires early and shutting down the system automatically, a fire eye can help to minimize downtime and reduce the impact on operations. Overall, the integration of a fire eye into a filtration system can provide significant benefits in terms of safety, compliance, and operational efficiency



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Reduction of Testing oil spillage on shop floor

Provide the cost economics & the environmental benefits of Projects (Please tabulate - Tangible/ Non-Tangible) Specimen given below

Sr No	Project Cost (INR Lakhs)	Intangible Benefits	Tangible Benefits	Saving (In UOM)	Saving (INR Lakhs)	Pay Back (Years)
1	145 Lacs	Space Saving 30 Sqm	- No safety hazard due to oil spillage - No Harm to Environment	20.5 Lacs/ Year	20.5 Lacs/ Year	2.6 Year

- Oil will be stored at centralized bulk tank releasing 25 sq. mt. floor space
- Better oil replenishment strategy through centralized filtration system
- Ease of maintenance/upkeep will increase through consolidation
- Manual unloading and handling of approx. 1000 barrels per year will be eliminated
- Improved filtered oil quality monitoring
- Look and feel near testbeds will be improved by availability of 30 sq. mt. more free space near test beds.
- Elimination of chances of line stoppage due to bulk stock availability
- Reduction in number of purchase transactions

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Reduction of Testing oil spillage on shop floor

Current oil supply and filtration:

- Transmission testing oil is used for performance testing of transmissions after assembly.
- Oil is filtered continuously and used again.
- Oil is manually filled for each testbed as per requirement. It requires barrel movement from stores to testbed each time.
- Each testbed has independent filtration system which covers total 30 sq. mt. floor space.

Parameter	Count
Number of testbeds	7
Annual requirement of oil	200 KL
Oil volume per barrels	209 lit
Number of barrels handled per year (Approx.)	1000

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Reduction of Testing oil spillage on shop floor

Following system is proposed to replace current system:

- Bulk oil storage tank of 21000 lit capacity will be installed at tank yard.
- Centralized filtration system will be installed near transmission factory. This filtration system will replace individual filtration systems attached to each testbed.
- Bulk tank, centralized filtration system and testbeds will be interconnected through pipeline for oil circulation.
- Oil filling, filtration and circulation will be through automatic system.
- Centralized oil filtration system will meet operational requirements such as oil flow rates, oil cleanliness etc.



Thank you

