

JOURNEY RISK MANAGEMENT REPORT



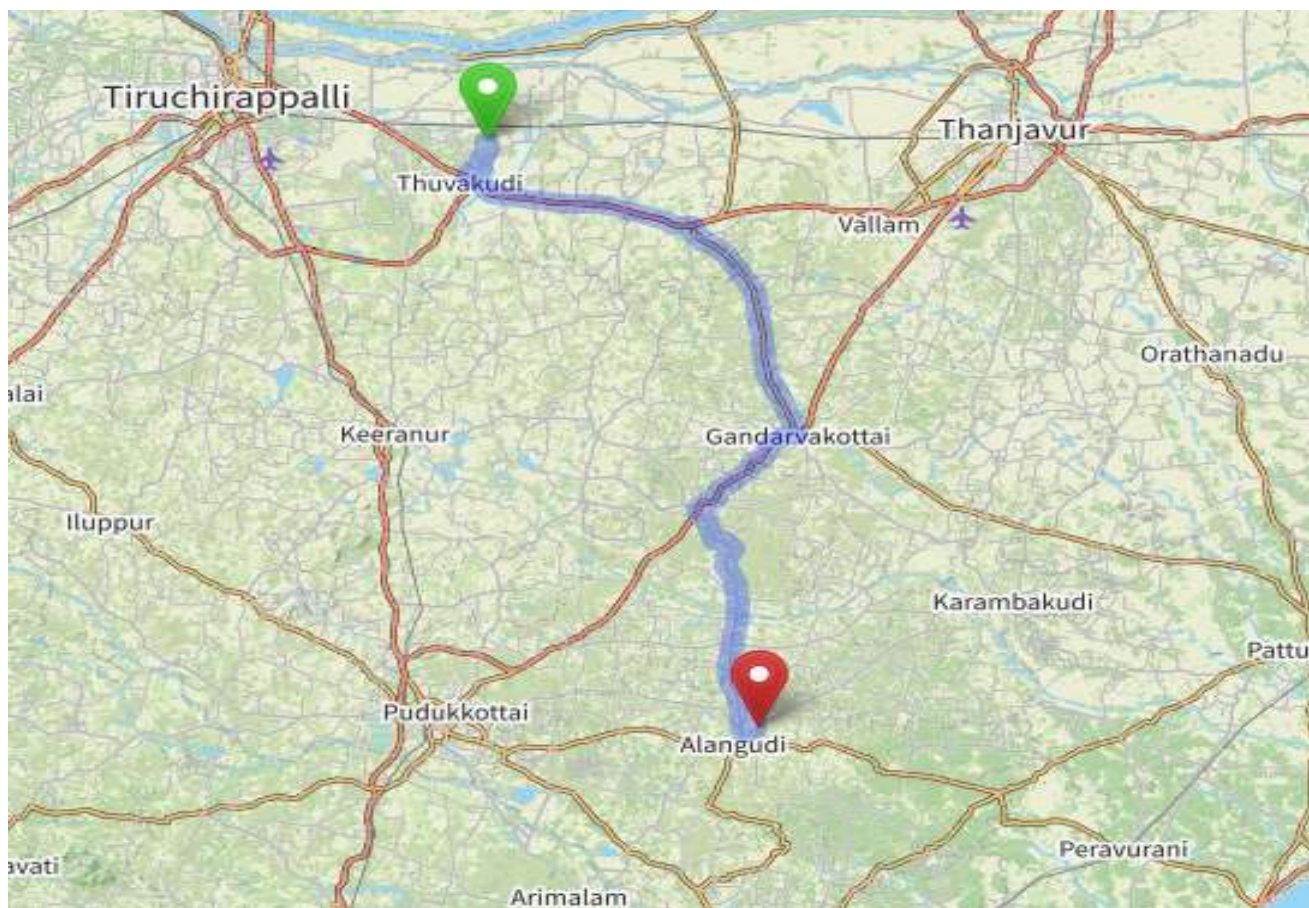
IndianOil

WELCOME TO JOURNEY
RISK MANAGEMENT (JRM)
STUDY USING ARTIFICIAL
INTELLIGENCE (AI)
FOR IOCL TRICHY
TERMINAL

ALARP/JRM/TNSO/CQFW

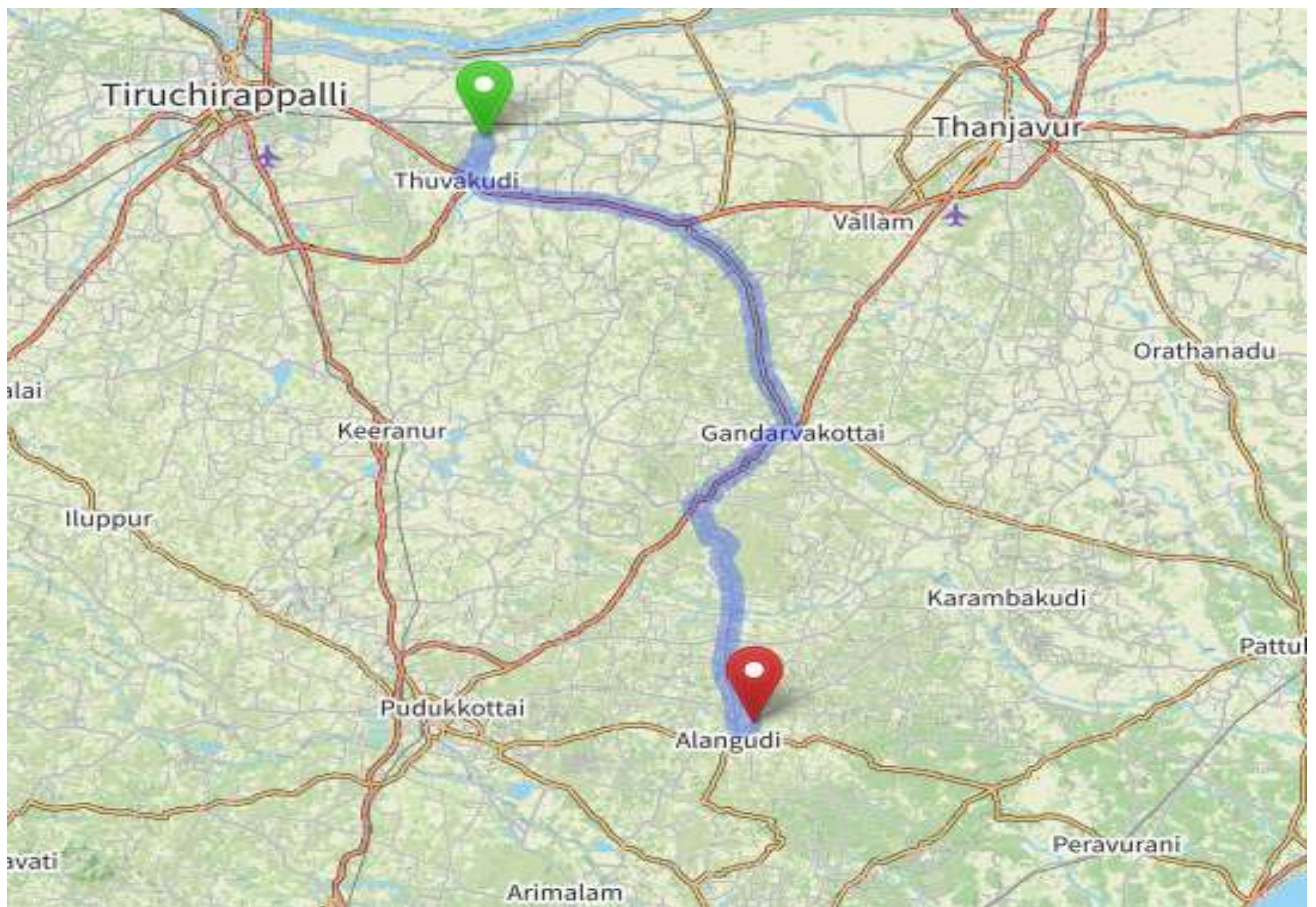
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**IOCL TIRUCHY TERMINAL (10.7753, 78.8368) TO CARD QUALITY FUEL
WORLD (10.370475, 78.991173) TOTAL DISTANCE – 67.3 KM**



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Welcome to the Journey Risk Management Study for CARD QUALITY FUEL WORLD

Total distance: 67.3 km; Start with: (10.7753, 78.8368), End with: (10.370475, 78.991173)

- **Route Safety Analysis Report**

- 1. Overview of the Route Map**

The route from Trichy Terminal (T.N). Take SIDCO to Indian oil Storage to NH 83 in Thuvakudi, At Jude Digital Studios, continue onto Thuvakudi to SIDCO& Indian oil Storage, Follow NH 83 to SH 99. Exit from NH 83, Follow SH 99 to NH 36 in Gandarvakkottai, Turn right at City Union Bank ATM onto NH 36. and Total distance from Trichy Terminal To CARD QUALITY FUEL WORLDIS 67.3 KM.

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Typical Weather Conditions and Potential Weather-Related Hazards

Weather Conditions: Trichy Terminal (T.N) To CARD QUALITY FUEL WORLD experiences a tropical climate with heavy monsoon rains from June to September, high humidity, and moderate temperatures throughout the year. The summers are short and sweltering; the winters are short, cool, and dry; and it is mostly clear year-round. Over the course of the year, the temperature typically varies from 60.8°F to 110°F and is rarely below 60.8°F to 110°F.

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Nov	Oct	Dec	Year
Record high °C (°F)	33.0 (91.4)	38.0 (100.4)	41.0 (105.8)	43.0 (109.4)	43.0 (109.4)	42.0 (107.6)	40.0 (104.0)	39.0 (102.2)	38.0 (100.4)	37.0 (98.6)	34.0 (93.2)	33.0 (91.4)	43.0 (109.4)
Average high °C (°F)	30.27 (86.49)	32.88 (91.18)	36.0 (96.8)	38.27 (100.89)	38.79 (101.82)	36.78 (98.2)	36.17 (97.11)	35.4 (95.72)	35.03 (95.05)	32.9 (91.22)	30.38 (86.68)	29.34 (84.81)	34.35 (93.83)
Daily mean °C (°F)	26.57 (79.83)	28.67 (83.61)	31.87 (89.37)	34.46 (94.03)	35.18 (95.32)	33.45 (92.21)	32.92 (91.26)	32.18 (89.92)	31.78 (89.2)	29.86 (85.75)	27.44 (81.39)	26.32 (79.38)	30.89 (87.6)
Average low °C (°F)	19.88 (67.78)	20.93 (69.67)	24.04 (75.27)	27.62 (81.72)	28.89 (84.0)	27.59 (81.66)	27.04 (80.67)	26.45 (79.61)	25.95 (78.71)	24.64 (76.35)	22.43 (72.37)	20.93 (69.67)	24.7 (76.46)
Record low °C (°F)	16.0 (60.8)	17.0 (62.6)	19.0 (66.2)	22.0 (71.6)	25.0 (77.0)	25.0 (77.0)	24.0 (75.2)	23.0 (73.4)	22.0 (71.6)	21.0 (69.8)	18.0 (64.4)	17.0 (62.6)	16.0 (60.8)
Average precipitation mm (inches)	12.32 (0.49)	20.82 (0.82)	26.34 (1.04)	57.63 (2.27)	102.32 (4.03)	61.68 (2.43)	63.88 (2.51)	124.75 (4.91)	141.74 (5.58)	231.04 (9.1)	159.62 (6.28)	71.08 (2.8)	89.44 (3.52)
Average precipitation days (≥ 1.0 mm)	3.09	3.27	5.36	7.36	16.73	12.36	13.55	18.91	19.64	22.73	17.55	9.73	12.52
Average relative humidity (%)	72.01	65.19	58.27	53.97	51.56	50.59	51.14	56.11	60.33	70.18	77.39	76.61	61.95
Mean monthly sunshine hours	11.19	11.34	11.34	11.63	12.65	12.68	11.83	11.24	11.05	9.11	7.68	8.29	10.84

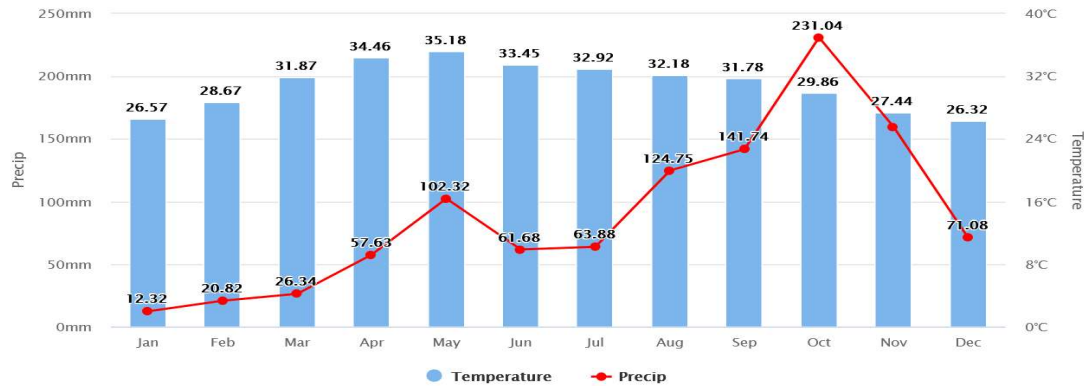
Weather-Related Hazards: Trichy Terminal (T.N) To CARD QUALITY FUEL WORLD Providing a local hourly weather forecast of rain, sun, wind, humidity and temperature.

The Long-range 12 day forecast also includes detail for weather today. Live weather reports from Trichy Terminal (T.N) To CARD QUALITY FUEL WORLD weather stations and weather warnings that include risk of thunder, high UV index and forecast gales.

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Climate Graph

The chart below shows the mean monthly temperature and precipitation of Tiruchirappalli in recent years.



Analysis of Traffic Patterns

Peak Hours:

Typically, Trichy Terminal (T.N) To CARD QUALITY FUEL WORLD peak traffic hours are from 8:00 AM to 11:00 AM and 4:00 PM to 8:00 PM on weekdays.

Congestion-Prone Areas:

- Old Burma Colony
- TIRUCHY PUBLIC SCHOOL
- Wonder World Theme Park
- Government TB Hospital
- Km food product
- BHARAT PETROLEUM CORPORATION LIMITED BOTTLING PLANT,
- Government Higher Secondary School

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- **Assessment of Road Quality and Infrastructure**

Road Quality: Generally, the roads are well-maintained but can suffer from potholes and waterlogging on State Highway during the monsoon season.

Infrastructure: Adequate signage, street lighting, and traffic signals are present, but some areas may lack proper drainage systems, leading to waterlogging.

- **Suggestions for Alternative Routes for Emergencies**

Alternative Route 1-). Take SIDCO to Indian oil Storage to NH 83 in Thuvakudi, At Jude Digital Studios, continue onto Thuvakudi to SIDCO& Indian oil Storage, Follow NH 83 to SH 99. Exit from NH 83, Follow SH 99 to NH 36 in Gandarvakkottai, Turn right at City Union Bank ATM onto NH 36.

Alternative Route 2 -). Take SIDCO to Indian oil Storage to NH 83, Continue on NH 83. Take SH 99 to NH 36, Turn left at Prasath kutty Aavin Tea shop onto Pudukkottai - Budalur Rd/SH 99, Turn right at City Union Bank ATM onto NH 36.

Summary of Local Regulations Affecting Hazardous Material Transport

Regulations: Transport of hazardous materials is regulated by the Petroleum and Explosives Safety Organization (PESO) and the Motor Vehicles Act. Specific routes and timings may be restricted for hazardous material transport.

Permits: Ensure all necessary permits and documentation are in place.

- **Overview of Historical Incidents**

Historical Incidents: There have been occasional incidents involving heavy vehicles, particularly during the monsoon season due to waterlogging and poor visibility. No major incidents involving hazardous materials have been reported recently.

- **Environmental Considerations and Sensitive Areas**

- **Sensitive Areas:** Old Burma Colony, TIRUCHY PUBLIC SCHOOL, Wonder World Theme Park, Government TB Hospital, Km food product, BHARAT PETROLEUM CORPORATION LIMITED BOTTLING PLANT.
- **Educational institutions:** State Institute Of Hotel Management and Catering Technology, Arasu Education - Jcb Institute in Trichy, Gnanam School of Business.
- **Hospital:** Dr Kamali's Home Clinic, Aruna Hospital,

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- **Gas Station:** IndianOil, Nayara Petrol Pump, IndianOil, HP Petrol Pump, IndianOil, Bharat Petroleum, Petrol Pump -Raj Agency, IndianOil.
- **Environmental Impact:** Minimize noise and air pollution, especially in residential and sensitive areas.
- **Air pollution:** Volatile chemicals evaporate during the filling and discharge process, or from leaks.
- **Loss of habitats:** Oil and gas operations can degrade animal habitats and disrupt migratory pathways.
- **Oil spills:** Oil spills can be devastating for animals and humans.
- **Greenhouse gas emissions:** Oil and gas operations can emit greenhouse gases like methane.
- **Analysis of Communication Coverage**

Communication Coverage: Generally good throughout the route, but potential dead zones may exist densely built-up areas or underpasses.

Dead Zones: Monitor for any communication blackouts, especially in underpasses or near large buildings.

- **Estimated Emergency Response Times:-** Old Burma Colony, TIRUCHY PUBLIC SCHOOL, Wonder World Theme Park, Government TB Hospital, Km food product, BHARAT PETROLEUM CORPORATION LIMITED BOTTLING PLANT..areas like have quicker response times (15- 20 minutes). Congested areas may experience delays (up to 30-40 minutes).

Overall Summary of Risk Assessment

- **Risk Level:** Moderate to High, especially during monsoon season.
- **Key Risks:** Waterlogging, traffic congestion, and potential communication dead zones.
- **Mitigation Measures:** Plan travel during non-peak hours, ensure proper vehicle maintenance, and have alternative routes and emergency contacts ready and control on the speed limit of the vehicle.

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- Road Signage for TT/PT Driver

Road Traffic Signs in India

Mandatory/Regulatory Signs
















 Stop	 Give way	 No entry	 Straight prohibited
 One way	 One way	 Vehicles prohibited in both directions	 Horn prohibited
 Pedestrians prohibited	 Cycles prohibited	 Right turn prohibited	 Left turn prohibited
 U-turn prohibited	 Overtaking prohibited	 Trucks prohibited	 Tonga prohibited

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 <p>All motor vehicles prohibited</p>	 <p>Hand cart prohibited</p>	 <p>Bullock cart prohibited</p>	 <p>Bullock and hand carts prohibited</p>
 <p>No parking</p>	 <p>No parking or stopping</p>	 <p>Speed limit</p>	 <p>Axle load limit</p>
 <p>Width limit</p>	 <p>Weight limit</p>	 <p>Length limit</p>	 <p>Load limit</p>
 <p>Restriction ands</p>			

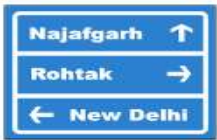

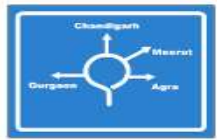
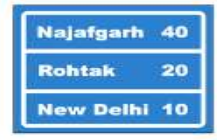
















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Cautionary signs

			
Right hand curve	Left hand curve	Right hand pin bend	Left hand pin bend
			
Right reverse bend	Narrow bridge	Gap in median	Cycle crossing
			
Pedestrian crossing	School	Men at work	Roundabout
			
Narrow road	Road widens	Side road left	Side road right

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Information signs

			
Advance direction	Map type advance direction	Rotary intersection	Reassurance
			
Direction	Direction	Place identification	Truck lay bay
			
Toll booth ahead	Parking this side	Parking both sides	Cycle stand
			
Scooter and motor cycle stand	Taxi stand	Auto-rickshaw stand	Cycle-rickshaw stand
			
Public telephone	Filling station	Hospital	First aid post

Conclusion

The route for Trichy Terminal (T.N) To CARD QUALITY FUEL Worlds generally manageable but poses several risks, particularly during the monsoon season. Proper planning, adherence to regulations, and awareness of potential hazards can significantly mitigate these risks.

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• Risk Assessment - Sharp Turns

Risk Type	Risk Level	Coordination	Distance From Start	Recommendation Speed
Sharp turn	Medium	10.769517372474736, 78.83735063199906	650 M	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.76584461192607, 78.8361700257199	1.1 KM	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.764182189802032, 78.83459588401435	1.3 KM	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.75826698538096, 78.83349398474651	2 KM	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.756372549032195, 78.83034570133539	2.4 KM	20km/hr TO 30 Km/Hr
Sharp turn	High	10.751346435623256, 78.8252297405902	3.2 KM	10km/hr TO 15 Km/Hr
Sharp turn	High	10.749451955814655, 78.83046376176118	3.8 KM	10km/hr TO 15 Km/Hr
Sharp turn	Medium	10.739322086318483, 78.83809834927386	5.2 KM	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.73638358720799, 78.85765706064745	7.4 KM	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.733122814995076, 78.87540261560731	9.4 KM	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.730613315581481, 78.9075879625983	12.9 KM	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.723935824957472, 78.92931083702165	15.4 KM	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.720496466902269, 78.93941529718165	16.6 KM	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.718227178328238, 78.94244663522967	17 KM	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.716915238110442, 78.94868974811423	17.7 KM	20km/hr TO 30 Km/Hr

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Sharp turn	Medium	10.717034532262224, 78.95121165756625	18 KM	20km/hr TO 30 Km/Hr
Sharp turn	High	10.717266449544763, 78.95436593524407	18.3 KM	10km/hr TO 15 Km/Hr
Sharp turn	Medium	10.720766270598597, 78.96376439526372	19.4 KM	20km/hr TO 30 Km/Hr
Sharp turn	High	10.71945911325298, 78.96003076046141	19.9 KM	10km/hr TO 15 Km/Hr
Sharp turn	High	10.718657949508776, 78.95859309648579	20.1 KM	10km/hr TO 15 Km/Hr
Sharp turn	Medium	10.717241891210914, 78.95508572420601	20.5 KM	20km/hr TO 30 Km/Hr
Sharp turn	High	10.716950198660903, 78.95453759661429	20.6 KM	10km/hr TO 15 Km/Hr
Sharp turn	Medium	10.71088808615262, 78.9558416688753	21.3 KM	20km/hr TO 30 Km/Hr
Sharp turn	High	10.710656163985194, 78.95781577463286	21.5 KM	10km/hr TO 15 Km/Hr
Sharp turn	High	10.708611024458909, 78.95824492805842	21.7 KM	10km/hr TO 15 Km/Hr
Sharp turn	High	10.672882868891097, 78.98920221330918	27 KM	10km/hr TO 15 Km/Hr
Sharp turn	Medium	10.668686633204702, 78.98958845139218	27.5 KM	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.66839141846377, 78.98960990906346	27.6 KM	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.643015219065195, 78.99498654103147	30.4 KM	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.625206404186365, 78.99565428827928	32.4 KM	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.62478460858532, 78.9957401189644	32.5 KM	20km/hr TO 30 Km/Hr
Sharp turn	High	10.574357794339809, 79.01368001472272	38.5 KM	10km/hr TO 15 Km/Hr
Sharp turn	Medium	10.573825676264207, 79.01064867667473	38.9 KM	20km/hr TO 30 Km/Hr

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Sharp turn	Medium	10.555280810368673, 78.99235389940597	41.4 KM	20km/hr TO 30 Km/Hr
Sharp turn	High	10.55375530802717, 78.98932256135797	42.2 KM	10km/hr TO 15 Km/Hr
Sharp turn	High	10.546659848677978, 78.98491990351165	43.2 KM	10km/hr TO 15 Km/Hr
Sharp turn	Medium	10.536473949790345, 78.97096810505661	45.1 KM	20km/hr TO 30 Km/Hr
Sharp turn	High	10.513879820475148, 78.96203685243397	48.2 KM	10km/hr TO 15 Km/Hr
Sharp turn	Medium	10.500350595302262, 78.96741843136822	52.4 KM	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.431834508178595, 78.97800623381752	55.2 KM	20km/hr TO 30 Km/Hr
Sharp turn	High	10.368792257457605, 78.98302547336672	65.9 KM	10km/hr TO 15 Km/Hr

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**IOCL TIRCHY TERMINAL (10.7753, 78.8368) TO CARD QUALITY FUEL
WORLD (10.370475, 78.991173) TOTAL DISTANCE – 67.3 KM**



10.769073692604486, 78.83720120889187



10.764113439530249, 78.83446118711721

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10.758209570013967, 78.83344387884853



10.751314343624747, 78.82530656733346

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10.75126610223314, 78.82518044583597



10.749591316479634, 78.83018387464983

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10.749104378396837, 78.83128038055115



10.739027364156707, 78.83807729846241

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10.723600498494587, 78.92918549372726



10.716821349530969, 78.95251175926562

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10.711197851415859, 78.95596724397815

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10.710654408657726, 78.95789865331022



10.708203535998349, 78.95815755738222

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10.584711105540109, 79.01017415725306

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10.554129531871878, 78.99021833939821



10.547326076366584, 78.98509835075703

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10.536014038897392, 78.97060995172681



10.521104122579336, 78.95786643423153

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10.368726229029319, 78.98303448074556



10.369895902515529, 78.99097511194232

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