

JOURNEY RISK MANAGEMENT REPORT



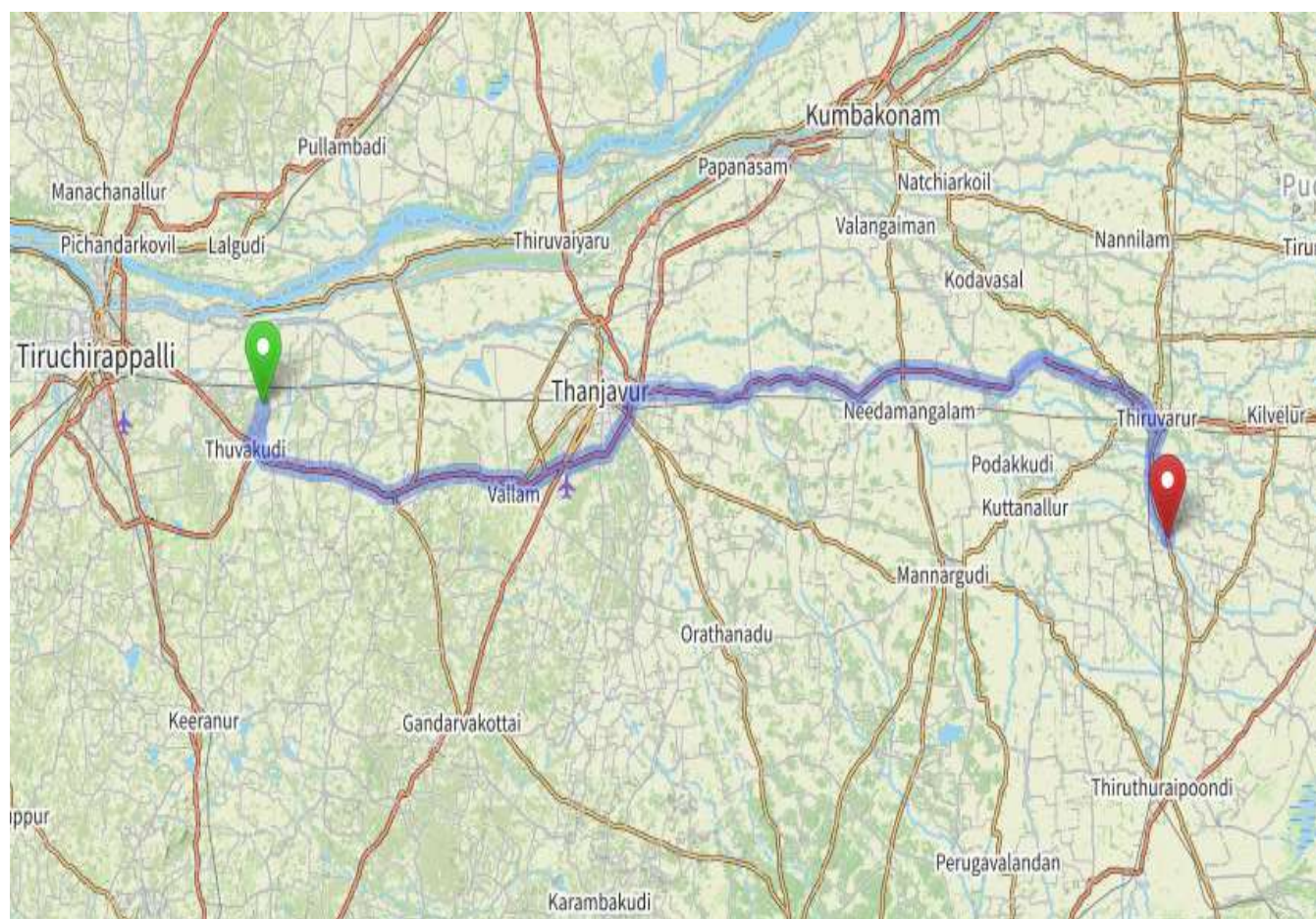
IndianOil

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

ALARP/JRM/TNSO/NJSPA

JOURNEY RISK MANAGEMENT REPORT

**IOCL TIRUCHY TERMINAL (10.7753, 78.8368) TO NJS PETROLEUM
AGENCY (10.688718, 79.644651) TOTAL DISTANCE – 110 KM**



ALARP/JRM/TNSO/NJSPA

JOURNEY RISK MANAGEMENT REPORT



Welcome to the Journey Risk Management Study for NJS PETROLEUM AGENCY

Total distance: 110 km; Start with: (10.7753, 78.8368), End with: (10.688718, 79.644651)

❖ 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, Follow NH 83 to Maravapatty - Villur - Kallikkudi Rd/Nagapattinam Rd/Nagapattinam - Coimbatore - Gundlupet Hwy/Thanjavur - Nagapattinam Rd in Agarathirunallur, Drive to Thiruvavur - Kumbakonam Rd in Kattur and Total distance from Trichy Terminal to NJS PETROLEUM AGENCYIS 110 KM.

ALARP/JRM/TNSO/NJSPA

JOURNEY RISK MANAGEMENT REPORT

Typical Weather Conditions and Potential Weather-Related Hazards

Weather Conditions: Trichy Terminal (T.N) To NJS PETROLEUM AGENCY 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

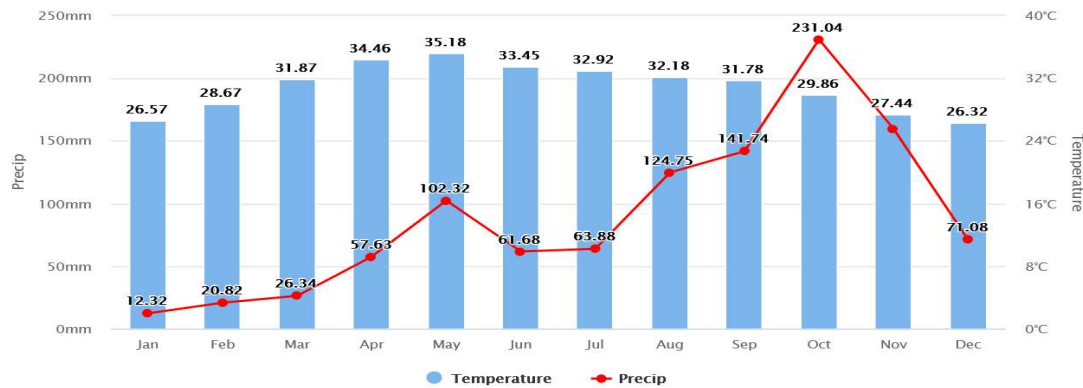
Weather-Related Hazards: Trichy Terminal (T.N) To NJS PETROLEUM AGENCY providing a local hourly weather forecast of rain, sun, wind, humidity and temperature.

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

JOURNEY RISK MANAGEMENT REPORT

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 NJS PETROLEUM AGENCY 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:

- Women's SIDCO Industrial Park
- AK Green House
- Forest office saliyamangalam
- GATHIYAR JOTHIDA NILAYAM
- SANTHIRAN SALON
- Iyengar bakery
- Sai Indian Café
- Ames vulcanizing shop

JOURNEY RISK MANAGEMENT REPORT

❖ 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- The route from Trichy Terminal (T.N). Take SIDCO to Indian oil Storage to NH 83 in Thuvakudi, Follow NH 83 to Maravapatty - Villur - Kallikkudi Rd/Nagapattinam Rd/Nagapattinam - Coimbatore - Gundlupet Hwy/Thanjavur - Nagapattinam Rd in Agarathirunallur, Drive to Thiruvarur - Kumbakonam Rd in Kattur and Total distance from Trichy Terminal to NJS PETROLEUM AGENCYIS 110 KM.

Alternative Route 2- The route from Trichy Terminal (T.N). Take SIDCO to Indian oil Storage to NH 83 in Thuvakudi, Follow NH 83 to Ammapettai - Vaduvur Rd, Turn right at Ganga Diagnostics Center onto Ammapettai - Vaduvur Rd.

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.

JOURNEY RISK MANAGEMENT REPORT

❖ Environmental Considerations and Sensitive Areas

- **Sensitive Areas:** Women's SIDCO Industrial Park, AK Green House, Forest office saliyamangalam, GATHIYAR JOTHIDA NILAYAM, SANTHIRAN SALON, Iyengar bakery, Sai Indian Café, Ames vulcanizing shop.
- **Educational institutions:** State Institute Of Hotel Management and Catering Technology, National Institute of Technology Tiruchirappalli, AGN InfoSystems & AGN INFOTECH, NIT Trichy.
- **Hospital:** - Dr Kamali's Home Clinic, Muthammal Medical Foundation Hospital, Times Hospital - (Trichy Institute of Medical and Educational Services), Apollo Speciality Hospitals – Trichy. GVN Hospital (P) Ltd. - Multispecialty Hospital Trichy.
- **Gas Station:** IndianOil, Bharat Petroleum - Sri Vela Fuels, IndianOil, Reliance Petrol Bunk.
- **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.

JOURNEY RISK MANAGEMENT REPORT

- **Estimated Emergency Response Times-** Women's SIDCO Industrial Park, AK Green House, Forest office saliyamangalam, GATHIYAR JOTHIDA NILAYAM, SANTHIRAN SALON, Iyengar bakery, Sai Indian Café, Ames vulcanizing shop.

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.

JOURNEY RISK MANAGEMENT REPORT














- 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

JOURNEY RISK MANAGEMENT REPORT

 <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>			

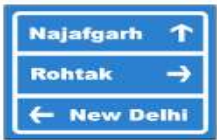

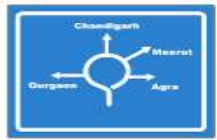
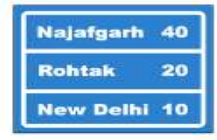
















JOURNEY RISK MANAGEMENT REPORT

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

JOURNEY RISK MANAGEMENT REPORT

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 NJS PETROLEUM AGENCY is 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.

JOURNEY RISK MANAGEMENT REPORT

• Risk Assessment - Sharp Turns

Risk Type	Risk Level	Coordination	Distance From Start	Recommendation Speed
Sharp turn	Medium	10.76951737110 74736, 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	10.757906942798716, 78.81117677157785	6.2 KM	10km/hr TO 15 Km/Hr
Sharp turn	Medium	10.787358384509025, 78.77401388280337	10.8 KM	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.807926793454792, 78.72541718894573	16.7 KM	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.812858780584483, 78.71601872869049	17.8 KM	20km/hr TO 30 Km/Hr
Sharp turn	High	10.813153854161522, 78.7123280092307	18.2 KM	10km/hr TO 15 Km/Hr
Sharp turn	High	10.8132381608445, 78.7110 9885580515	18.3 KM	10km/hr TO 15 Km/Hr
Sharp turn	Medium	10.817664228587676, 78.7119846864179	18.8 KM	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.825209469597384, 78.71110 1383982665	19.6 KM	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.844809252744147, 78.71308566683136	21.8 KM	20km/hr TO 30 Km/Hr

JOURNEY RISK MANAGEMENT REPORT

Sharp turn	High	10.848867431944997, 78.71317588521788	22.2 KM	10km/hr TO 15 Km/Hr
Sharp turn	High	10.848867431944997, 78.71346458407959	22.3 KM	10km/hr TO 15 Km/Hr
Sharp turn	Medium	10.843905458719005, 78.71344654040074	22.8 KM	20km/hr TO 30 Km/Hr
Sharp turn	High	10.841388997909634, 78.71341045302391	23.1 KM	10km/hr TO 15 Km/Hr
Sharp turn	High	10.841176338285557, 78.71582830599077	23.4 KM	10km/hr TO 15 Km/Hr
Sharp turn	Medium	10.841956089501496, 78.71830028999419	23.7 KM	20km/hr TO 30 Km/Hr
Sharp turn	High	10.841353554649443, 78.720110 900731076	23.9 KM	10km/hr TO 15 Km/Hr
Sharp turn	Medium	10.727354139198631, 79.09960193612054	35.2 KM	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.779971919286307, 79.16963977870513	45.7 KM	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.791960139960173, 79.28652454511062	58.7 KM	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.7912856380406, 79.32223011191846	63.7 KM	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.788323385578975, 79.49991537285766	84.4 KM	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.801813269288452, 79.5301277755412	88.3 KM	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.808557983957014, 79.53287435760336	89.5 KM	20km/hr TO 30 Km/Hr
Sharp turn	High	10.78570204621578, 79.59972819110558	96.3 KM	10km/hr TO 15 Km/Hr
Sharp turn	High	10.792633080625288, 79.60311953882122	97.3 KM	10km/hr TO 15 Km/Hr
Sharp turn	High	10.759324505281622, 79.63845054835923	102 KM	10km/hr TO 15 Km/Hr

JOURNEY RISK MANAGEMENT REPORT

**IOCL TIRCHY TERMINAL (10.7753, 78.8368) TO NJS PETROLEUM
AGENCY (10.688718, 79.644651) TOTAL DISTANCE – 110 KM**



10.769073692604486, 78.83720120889187

ALARP/JRM/TNSO/NJSPA

JOURNEY RISK MANAGEMENT REPORT



10.764113439530110 9, 78.83446110 711721



10.758209570013967, 78.83344387884853

ALARP/JRM/TNSO/NJSPA

JOURNEY RISK MANAGEMENT REPORT



10.7513143436110 747, 78.82530656733346



10.75126610223314, 78.82518044583597

ALARP/JRM/TNSO/NJSPA

JOURNEY RISK MANAGEMENT REPORT



10.759296455409434, 78.80954749110 5673

ALARP/JRM/TNSO/NJSPA

JOURNEY RISK MANAGEMENT REPORT



10.787270680907813, 78.77433315009567



10.801869769228155, 78.74289067038384

ALARP/JRM/TNSO/NJSPA

JOURNEY RISK MANAGEMENT REPORT



10.807212761783093, 78.727384388977



10.813070768754649, 78.71358087620345

ALARP/JRM/TNSO/NJSPA

JOURNEY RISK MANAGEMENT REPORT



10.813158210442325, 78.71110 472790252



10.817454621921845, 78.71214828336923

ALARP/JRM/TNSO/NJSPA

JOURNEY RISK MANAGEMENT REPORT



10.785471621066602, 79.59725612720894



10.785819474453595, 79.59950519724053

ALARP/JRM/TNSO/NJSPA

JOURNEY RISK MANAGEMENT REPORT



10.75927448489174, 79.63875964852294



10.689306478644271, 79.64443157983298

ALARP/JRM/TNSO/NJSPA