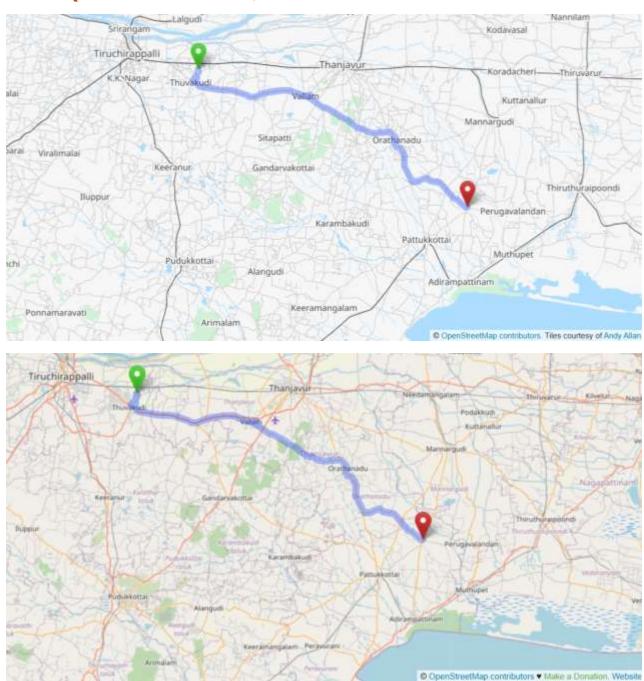


FOR IOCL TRICHY TERMINAL

ALARP/JRM/TNSO/SRIVEERANAR

IOCL TIRCHY TERMINAL (10.7753, 78.8368) TO SRI VEERANAR

FUELS (10.491921, 79.397705) TOTAL DISTANCE - 82.3 KM



Welcome to the Journey Risk Management Study for SRI VEERANAR FUELS

Total distance: 82.3 km; Start with: (10.7753, 78.8368), End with: (10.491921, 79.397705)

* Route Safety Analysis Report

1. Overview of the Route Map

The route from Trichy Terminal (T.N) TO SRI VEERANAR FUELS-Take SIDCO to Indian oil Storage to NH 83 in Thuvakudi, Follow NH 83 to Vallam. Exit from NH 83, Follow Vallam Rd to Thanjavur - Kalayarkoil - Sayalkudi Rd/Thanjavur - Karaikudi - Kalaiyarkoil - Sayalkudi Rd/Thanjavur - Orathanadu - Pattukottai Rd/Thanjavur - Pattukkottai Rd in Thennamanadu North, Turn right onto Thanjavur - Kalayarkoil - Sayalkudi Rd/Thanjavur - Karaikudi - Kalaiyarkoil - Sayalkudi Rd/Thanjavur - Orathanadu - Pattukottai Rd/Thanjavur - Pattukkottai Rd, Turn left onto Pappanadu Rd/Pappanadu-Madukkur Rd, and Total distance from Trichy Terminal To SRI VEERANAR FUELS is 82.3 km for heavy vehicles carrying hazardous materials.

<u>Typical Weather Conditions and Potential Weather-Related</u> Hazards

Weather Conditions: Trichy Terminal (T.N) To SRI VEERANAR FUELS 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.

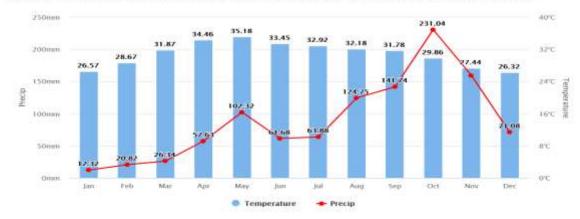
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Nov	Oct	Dec	Year
Record high °C (°F)	39.0 (91.4)	38.0 (100.4)	41.0- (105.8)	43.0 (109.4)	49,0 (109,4)	42.0 (107.6)	40.0 (104.0)	39.0 (102.2)	38.0 (100.4)	-37.8 (95.5)	34.0 (93.2)	33.0 (91.4)	43.0 (109.4)
Average high °C (°F)	30.27 (86.49)	32.88 (91.18)	36.0 (96.8)	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
Average precipitation mm (inches)	12.32 (0.49)	20.82 (9.82)	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 (2.4)	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	E29	10.84

Weather-Related Hazards: Trichy Terminal (T.N) To SRI VEERANAR FUELS 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 SRI VEERANAR FUELS weather stations and weather warnings that include risk of thunder, high UV index and forecast gales.







Analysis of Traffic Patterns

Peak Hours:

Typically, Trichy Terminal (T.N) To SRI VEERANAR FUELS peak traffic hours are from 9:00 AM to 11:00 AM and 4:00 PM to 8:00 PM on weekdays.

Congestion-Prone Areas:

- TIRUCHY PUBLIC SCHOOL
- Wonder World Theme Park
- Ponnaiyah Ramajayam Institute of Science & Technology
- Blossom Bluebells Academy School (CBSE Syllabus)
- Dr.M.S. Swaminathan Agricultural College and Research Institute, ECK
- MMA School

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, Follow NH 83 to Vallam. Exit from NH 83, Follow Vallam Rd to Thanjavur - Kalayarkoil - Sayalkudi Rd/Thanjavur - Karaikudi - Kalaiyarkoil - Sayalkudi Rd/Thanjavur - Orathanadu - Pattukottai Rd/Thanjavur - Pattukkottai Rd in Thennamanadu North, Turn right onto Thanjavur - Kalayarkoil - Sayalkudi Rd/Thanjavur - Karaikudi - Kalaiyarkoil - Sayalkudi Rd/Thanjavur - Orathanadu - Pattukottai Rd/Thanjavur - Pattukkottai Rd, Turn left onto Pappanadu Rd/Pappanadu - Madukkur Rd.

Alternative Route 2 -) Take SIDCO to Indian oil Storage to NH 83, Continue on NH 83. Take Vallam Rd and Thanjavur - Kalayarkoil - Sayalkudi Rd/Thanjavur - Karaikudi - Kalaiyarkoil - Sayalkudi Rd/Thanjavur -

Orathanadu - Pattukottai Rd/Thanjavur - Pattukkottai Rd to Pappanadu Rd/Pappanadu-Madukkur Rd, Turn right onto Thanjavur - Kalayarkoil - Sayalkudi Rd/Thanjavur - Karaikudi - Kalaiyarkoil - Sayalkudi Rd/Thanjavur - Orathanadu - Pattukottai Rd/Thanjavur - Pattukkottai 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.

Environmental Considerations and Sensitive Areas

- Sensitive Areas: TIRUCHY PUBLIC SCHOOL, Wonder World Theme Park, Ponnaiyah Ramajayam Institute of Science & Technology, Blossom Bluebells Academy School (CBSE Syllabus), Dr.M.S. Swaminathan Agricultural College and Research Institute, ECK, MMA School.
- **Educational institutions**: Arasu Education Jcb Institute in Trichy, Chanakya share market training Institute, Adaikalamatha Institute of Teacher Education, National Institute of Food Technology, Entrepreneurship and.
- **Hospital:** Dr Kamali's Home Clinic, Meenakshi Hospital, Sivapreethi Hospital, Sugalaya Varmakalai Treatment Center.
- **Gas Station:** Jagdish filling station, Nayara Petrol Pump Nayara Petrol Pump,Indianoil S.Ashok kumar, BPCL Masiya Fuels,Gayatri Agency.
- **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:

TIRUCHY PUBLIC SCHOOL ,Wonder World Theme Park, Ponnaiyah Ramajayam Institute of Science & Technology, Blossom Bluebells Academy School (CBSE Syllabus),Dr.M.S. Swaminathan Agricultural College and Research Institute, ECK MMA School. 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.
- Road Signage for TT/PT Driver

Road Traffic Signs in India

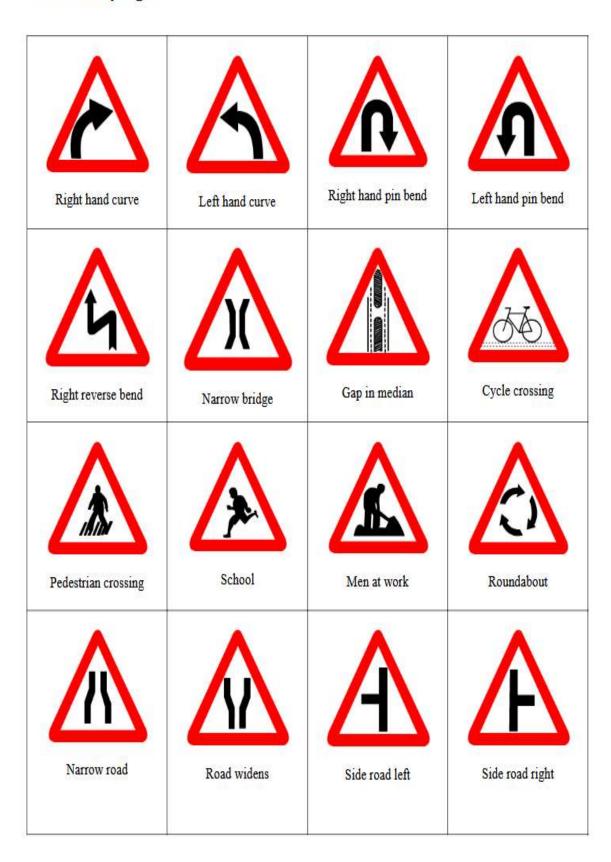
Mandatory/Regulatory Signs



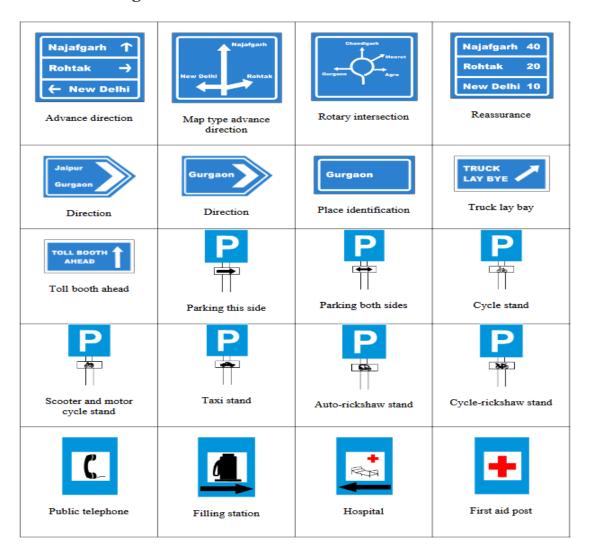




Cautionary signs



Information signs



Conclusion

The route for Trichy Terminal (T.N) To SRI VEERANAR FUELS 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.

• Risk Assessment - Sharp Turns

Risk Type	Risk Level	Coordination	Distance From Start	Recommendation Speed
Sharp	Medium	10.769517372474736,	650 KM	20km/hr TO 30
turn	Mediaiii	78.83735063199906	OSO IXIVI	Km/Hr
Sharp	Medium	10.76584461192607,	1.1 KM	20km/hr TO 30
turn	Wicalam	78.8361700257199	1.1 1001	Km/Hr
Sharp	Medium	10.764182189802032,	1.3 KM	20km/hr TO 30
turn		78.83459588401435		Km/Hr
Sharp	Medium	10.75826698538096,	2 KM	20km/hr TO 30
turn		78.83349398474651		Km/Hr
Sharp	Medium	10.756372549032195,	2.4 KM	20km/hr TO 30
turn		78.83034570133539		Km/Hr
Sharp	High	10.751346435623256,	3.2 KM	10km/hr TO 15
turn		78.8252297405902		Km/Hr
Sharp	High	10.749451955814655,	3.8 KM	10km/hr TO 15
turn		78.83046376176118		Km/Hr
Sharp	Medium	10.739322086318483,	5.2 KM	20km/hr TO 30
turn		78.83809834927386		Km/Hr
Sharp	Medium	10.73638358720799,	7.4 KM	20km/hr TO 30
turn		78.85765706064745		Km/Hr
Sharp	Medium	10.732981078965743,	9.4 KM	20km/hr TO 30
turn		78.87520874109956		Km/Hr
Sharp	Medium	10.732865083664377,	10.9 KM	20km/hr TO 30
turn		78.88929730997383		Km/Hr
Sharp	Medium	10.730622499591515,	12.9 KM	20km/hr TO 30
turn		78.90775412216747		Km/Hr
Sharp	Medium	10.720904924338443,	16.4 KM	20km/hr TO 30
turn		78.93805787452602		Km/Hr
Sharp	Medium	10.71823691532396,	17 KM	20km/hr TO 30
turn		78.94246547130157		Km/Hr
Sharp	Medium	10.71690507655357,	17.6 KM	20km/hr TO 30
turn		78.94798176089265		Km/Hr

Sharp	Medium	10.717137481731783,	18.3 KM	20km/hr TO 30
turn		78.95400634061058		Km/Hr
Sharp	High	10.724822618517969,	20.9 KM	10km/hr TO 15
turn		78.9767159328364		Km/Hr
Sharp	Medium	10.729882461351261,	23.6 KM	20km/hr TO 30
turn		79.00023354091847		Km/Hr
Sharp	High	10.730894419758593,	25.8 KM	10km/hr TO 15
turn		79.01997459879757		Km/Hr
Sharp	High	10.730388440978299,	26.5 KM	10km/hr TO 15
turn		79.02701271508492		Km/Hr
Sharp	Medium	10.72785853437635,	27.5 KM	20km/hr TO 30
turn		79.03593910647373		Km/Hr
Sharp	High	10.727084939556493,	30.8 KM	10km/hr TO 15
turn		79.06554150725997		Km/Hr
Sharp	High	10.723822902909419,	31.3 KM	10km/hr TO 15
turn		79.06929459251997		Km/Hr
Sharp	High	10.72091540581739,	31.7 KM	10km/hr TO 15
turn		79.06756239932304		Km/Hr
Sharp	High	10.721908212843593,	32.1 KM	10km/hr TO 15
turn		79.07066591213419		Km/Hr
Sharp	High	10.715809489668976,	32.8 KM	10km/hr TO 15
turn		79.06922241780342		Km/Hr
Sharp	Medium	10.715242160336519,	33 KM	20km/hr TO 30
turn		79.07095461100035		Km/Hr
Sharp	Medium	10.703469836629056,	35.3 KM	20km/hr TO 30
turn		79.08798784468142		Km/Hr
Sharp	Medium	10.696448775454964,	36.7 KM	20km/hr TO 30
turn		79.09794795556375		Km/Hr
Sharp	Medium	10.695502569729664,	37.2 KM	20km/hr TO 30
turn		79.10318339482231		Km/Hr
Sharp	Medium	10.694130913553563,	37.5 KM	20km/hr TO 30
turn		79.10561105323868		Km/Hr
Sharp	High	10.681487529695021,	40.4 KM	10km/hr TO 15
turn		79.12824896855714		Km/Hr
Sharp	Medium	10.67695486776632,	41.2 KM	20km/hr TO 30
turn		79.1337718914544		Km/Hr

Sharp	Medium	10.67399171404084,	42 KM	20km/hr TO 30
turn		79.14020364483756		Km/Hr
Sharp	High	10.67005536178023,	43 KM	10km/hr TO 15
turn		79.14845768345319		Km/Hr
Sharp	High	10.654428733549738,	45.8 KM	10km/hr TO 15
turn		79.16836448268437		Km/Hr
Sharp	Medium	10.652221854896029,	46.6 KM	20km/hr TO 30
turn		79.17540469243615		Km/Hr
Sharp	Medium	10.650492128115856,	47.6 KM	20km/hr TO 30
turn		79.18469048587875		Km/Hr
Sharp	Medium	10.647688756813132,	48 KM	20km/hr TO 30
turn		79.1868753787529		Km/Hr
Sharp	Medium	10.646197591437373,	48.5 KM	20km/hr TO 30
turn		79.19094170660031		Km/Hr
Sharp	Medium	10.642678412119103,	50.2 KM	20km/hr TO 30
turn		79.2064180294603		Km/Hr
Sharp	Medium	10.644467830353127,	51.3 KM	20km/hr TO 30
turn		79.21588589728412		Km/Hr
Sharp	High	10.644987886203523,	51.6 KM	10km/hr TO 15
turn		79.21863195462178		Km/Hr
Sharp	Medium	10.644749298119521,	53.1 KM	20km/hr TO 30
turn		79.23222684175344		Km/Hr
Sharp	Medium	10.64528612104593,	53.7 KM	20km/hr TO 30
turn		79.23799253049232		Km/Hr
Sharp	Medium	10.634609131813274,	55.3 KM	20km/hr TO 30
turn		79.24782454730857		Km/Hr
Sharp	Medium	10.620710591849507,	56.9 KM	20km/hr TO 30
turn		79.24758178157975		Km/Hr
Sharp	Medium	10.614566400591388,	57.6 KM	20km/hr TO 30
turn		79.2504949716794		Km/Hr
Sharp	High	10.612955766919104,	58.1 KM	10km/hr TO 15
turn		79.25480406536846		Km/Hr
Sharp	Medium	10.613194379850361,	58.4 KM	20km/hr TO 30
turn		79.25765656400769		Km/Hr
Sharp	Medium	10.606356045215447,	59.3 KM	20km/hr TO 30
turn		79.26178068181336		Km/Hr

Sharp turn	Medium	10.604864678000341, 79.2614165330509	59.5 KM	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.599674663282858, 79.26590770124272	60.2 KM	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.587623945432698, 79.26687876460927	61.6 KM	20km/hr TO 30 Km/Hr
Sharp turn	High	10.577564156151789, 79.26661048804998	62.8 KM	10km/hr TO 15 Km/Hr
Sharp turn	Medium	10.564071436487005, 79.27114295850889	64.3 KM	20km/hr TO 30 Km/Hr
Sharp turn	High	10.544242460468135, 79.28135681019415	66.8 KM	10km/hr TO 15 Km/Hr
Sharp turn	Medium	10.544242460468135, 79.29105567776085	67.9 KM	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.545339415945685, 79.29697799512458	68.5 KM	20km/hr TO 30 Km/Hr
Sharp turn	High	10.550064717918724, 79.30650520131842	69.7 KM	10km/hr TO 15 Km/Hr
Sharp turn	High	10.551077273185644, 79.31543159270723	70.7 KM	10km/hr TO 15 Km/Hr
Sharp turn	Medium	10.547280173751401, 79.31877898947803	71.3 KM	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.543314263978909, 79.33766174153001	73.4 KM	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.522808853542424, 79.35929107515699	76.7 KM	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.510234902978182, 79.37062072576587	78.6 KM	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.503989931706096, 79.37989044015815	79.9 KM	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.494591862507585, 79.39140826516827	81.5 KM	20km/hr TO 30 Km/Hr
Sharp turn	High	10.492523831819089, 79.39375228573891	81.9 KM	10km/hr TO 15 Km/Hr

• Risk Assessment - Elevation Changes

ALARP/JRM/TNSO/SRIVEERANAR

Risk Type	Specific Risk	Risk Level	Coordination	Elevation Change	Gradien t	Recomme ndation Speed
Elevatio n Change	Descen t	Low	10.7753, 78.8368	-3.02m	-2.96 %	40 km/hr to 50 km/hr
Elevatio n Change	Descen t	Low	10.993921 , 78.326323	-9.28m	-6.28%	40 km/hr to 50 km/hr

<u>IOCL TIRCHY TERMINAL (10.7753, 78.8368) TO SRI VEERANAR</u> <u>FUELS (</u>10.939666 , 79.098055) TOTAL DISTANCE – 62.5 KM



10.769073692604486, 78.83720120889187



10.764113439530249, 78.83446118711721



10.758209570013967, 78.83344387884853



10.751314343624747, 78.82530656733346



10.75126610223314, 78.82518044583597



10.749591316479634, 78.83018387464983



10.739318685033433, 78.8379420178455



10.735064036857814, 78.86553394452655

ALARP/JRM/TNSO/SRIVEERANAR



10.72580557887016, 79.0641504304304



10.721070762434657, 79.06770763454654



10.721721269051843, 79.07032492179873



10.715856047911897, 79.06925965827192



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10.61312680226564, 79.255443411729



10.605700689381077, 79.26145932867404



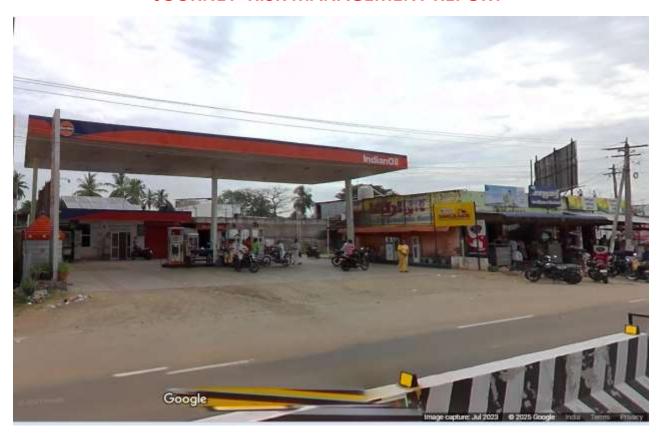
10.544054693387439, 79.28156554890528



10.5481532085175, 79.30366110779738



10.550894064710347, 79.31525082885415



10.4920676794054, 79.39718658032275