H.3 Oil Spill Consequence Modeling Results

Canadian Tar Sands

Hydrocarbon Pool Fires Model
==========
Last revised Dec. 1989

User specified flame temperature is used to estimate emissive power

User Inputs:

Ambient temperature, (K)	305
Relative humidity, (Percent)	50
Wind speed, (m/s)	1
Discharge temperature, (K)	350
Discharge time, (s)	600
Total volume discharged, (m3)	8661
Dike radius, (m)	1E+06
Flame temperature, (K)	1000
Average emissive power, (kW/m2)	56.7
Burning rate, (m/s)	0.00025

Visual range (Very Clear) 20000 m
Spread on land

Model Outputs:

Liquid density at normal boiling point, (kg/m3)	593
Mass burning rate, (kg/m2/s)	0.148
Final pool radius, (m)	162
Depletion time, (s)	708
Flame height, (m)	622
Flame tilt from vertical, (degrees)	0
Flame drag, (m)	124

Fenceline Incident Flux Estimates

#	Xs	Ys	Itau	Ivf	Iflux
0	100	0	0.614	0.363	12.7
1	200	0	0.566	0.181	5.8
2	300	0	0.539	0.116	3.55
3	400	0	0.52	0.0827	2.44
4	500	0	0.506	0.062	1.78
5	600	0	0.495	0.0481	1.35
6	700	0	0.486	0.0382	1.05
7	800	0	0.478	0.031	0.839
8	900	0	0.47	0.0256	0.681
9	1000	0	0.464	0.0214	0.562

Xs: User Specified Fenceline Distance, (m)
Ys: User Specified Crosswind Distance, (m)
Itau: Atmospheric Transmissivity
Ivf: Maximum View Factor
Iflux: Incident Flux at Fenceline Distance, (kW/m2)

Hazard Distances and Areas At User Specified Flux

#	Ix	Ax	Itau	Ivf	THs
0	227	1.61E+05	0.558	0.158	5
1	124	4.82E+04	0.599	0.294	10
2	101	3.21E+04	0.613	0.359	12.5
3	0	0	0	0	0
4	0	0	0	0	0
5	0	0	0	0	0
6	0	0	0	0	0
7	0	0	0	0	0
8	0	0	0	0	0
9	0	0	0	0	0

Ix: Calculated Distance At User Specified Thermal Flux, (m)
Ax: Calculated Hazard Area At User Specified Thermal Flux, (m)
Itau: Atmospheric Transmissivity
Ivf: Maximum View Factor
THs: User Specified Thermal Criterion, (kW/m2)

Hydrocarbon Pool Fires Model
==========
Last revised Dec. 1989

User specified flame temperature is used to estimate emissive power

User Inputs:

Ambient temperature, (K)	305
Relative humidity, (Percent)	50
Wind speed, (m/s)	5
Discharge temperature, (K)	350
Discharge time, (s)	600
Total volume discharged, (m3)	8661
Dike radius, (m)	1E+06
Flame temperature, (K)	1000
Average emissive power, (kW/m2)	56.7
Burning rate, (m/s)	0.00025

Visual range (Very Clear) 20000 m
Spread on land

Model Outputs:

Liquid density at normal boiling point, (kg/m3)	593
Mass burning rate, (kg/m2/s)	0.148
Final pool radius, (m)	162
Depletion time, (s)	708
Flame height, (m)	443
Flame tilt from vertical, (degrees)	0
Flame drag, (m)	155

Fenceline Incident Flux Estimates

#	Xs	Ys	Itau	Ivf	Iflux
0	100	0	0.614	0.461	16.1
1	200	0	0.566	0.224	7.19
2	300	0	0.539	0.14	4.27
3	400	0	0.52	0.0955	2.81
4	500	0	0.506	0.0689	1.98
5	600	0	0.495	0.0516	1.45
6	700	0	0.486	0.0398	1.1
7	800	0	0.478	0.0315	0.853
8	900	0	0.47	0.0255	0.679
9	1000	0	0.464	0.021	0.552

Xs: User Specified Fenceline Distance, (m)
Ys: User Specified Crosswind Distance, (m)
Itau: Atmospheric Transmissivity
Ivf: Maximum View Factor
Iflux: Incident Flux at Fenceline Distance, (kW/m2)

Hazard Distances and Areas At User Specified Flux

#	Ix	Ax	Itau	Ivf	THs
0	267	2.23E+05	0.547	0.161	5
1	151	7.2E+04	0.586	0.301	10
2	125	4.87E+04	0.599	0.368	12.5
3	0	0	0	0	0
4	0	0	0	0	0
5	0	0	0	0	0
6	0	0	0	0	0
7	0	0	0	0	0
8	0	0	0	0	0
9	0	0	0	0	0

Ix: Calculated Distance At User Specified Thermal Flux, (m)
Ax: Calculated Hazard Area At User Specified Thermal Flux, (m)
Itau: Atmospheric Transmissivity
Ivf: Maximum View Factor
THs: User Specified Thermal Criterion, (kW/m2)

Hydrocarbon Pool Fires Model
==========
Last revised Dec. 1989

User specified flame temperature is used to estimate emissive power

User Inputs:

Ambient temperature, (K)	305
Relative humidity, (Percent)	50
Wind speed, (m/s)	10
Discharge temperature, (K)	350
Discharge time, (s)	600
Total volume discharged, (m3)	8661
Dike radius, (m)	1E+06
Flame temperature, (K)	1000
Average emissive power, (kW/m2)	56.7
Burning rate, (m/s)	0.00025

Visual range (Very Clear) 20000 m
Spread on land

Model Outputs:

Liquid density at normal boiling point, (kg/m3)	593
Mass burning rate, (kg/m2/s)	0.148
Final pool radius, (m)	162
Depletion time, (s)	708
Flame height, (m)	383
Flame tilt from vertical, (degrees)	0
Flame drag, (m)	171

Fenceline Incident Flux Estimates

#	Xs	Ys	Itau	Ivf	Iflux
0	100	0	0.614	0.516	18
1	200	0	0.566	0.246	7.89
2	300	0	0.539	0.15	4.59
3	400	0	0.52	0.101	2.96
4	500	0	0.506	0.0711	2.04
5	600	0	0.495	0.0524	1.47
6	700	0	0.486	0.04	1.1
7	800	0	0.478	0.0313	0.848
8	900	0	0.47	0.0252	0.671
9	1000	0	0.464	0.0206	0.542

Xs: User Specified Fenceline Distance, (m)
Ys: User Specified Crosswind Distance, (m)
Itau: Atmospheric Transmissivity
Ivf: Maximum View Factor
Iflux: Incident Flux at Fenceline Distance, (kW/m2)

Hazard Distances and Areas At User Specified Flux

#	Ix	Ax	Itau	Ivf	THs
0	283	2.5E+05	0.543	0.162	5
1	165	8.53E+04	0.58	0.304	10
2	136	5.83E+04	0.593	0.372	12.5
3	0	0	0	0	0
4	0	0	0	0	0
5	0	0	0	0	0
6	0	0	0	0	0
7	0	0	0	0	0
8	0	0	0	0	0
9	0	0	0	0	0

Ix: Calculated Distance At User Specified Thermal Flux, (m)
Ax: Calculated Hazard Area At User Specified Thermal Flux, (m)
Itau: Atmospheric Transmissivity
Ivf: Maximum View Factor
THs: User Specified Thermal Criterion, (kW/m2)

Hydrocarbon Pool Fires Model
==========
Last revised Dec. 1989

User specified flame temperature is used to estimate emissive power

User Inputs:

Ambient temperature, (K)	305
Relative humidity, (Percent)	50
Wind speed, (m/s)	20
Discharge temperature, (K)	350
Discharge time, (s)	600
Total volume discharged, (m3)	8661
Dike radius, (m)	1E+06
Flame temperature, (K)	1000
Average emissive power, (kW/m2)	56.7
Burning rate, (m/s)	0.00025

Visual range (Very Clear) 20000 m
Spread on land

Model Outputs:

Liquid density at normal boiling point, (kg/m3)	593
Mass burning rate, (kg/m2/s)	0.148
Final pool radius, (m)	162
Depletion time, (s)	708
Flame height, (m)	331
Flame tilt from vertical, (degrees)	38.4
Flame drag, (m)	188

Fenceline Incident Flux Estimates

#	Xs	Ys	Itau	Ivf	Iflux
0	100	0	0.614	0.8	27.8
1	200	0	0.566	0.497	15.9
2	300	0	0.539	0.314	9.59
3	400	0	0.52	0.196	5.76
4	500	0	0.506	0.122	3.51
5	600	0	0.495	0.0797	2.24
6	700	0	0.486	0.0548	1.51
7	800	0	0.478	0.0396	1.07
8	900	0	0.47	0.0297	0.793
9	1000	0	0.464	0.0231	0.607

Xs: User Specified Fenceline Distance, (m)
Ys: User Specified Crosswind Distance, (m)
Itau: Atmospheric Transmissivity
Ivf: Maximum View Factor
Iflux: Incident Flux at Fenceline Distance, (kW/m2)

Hazard Distances and Areas At User Specified Flux

#	Ix	Ax	Itau	Ivf	THs
0	428	5.75E+05	0.515	0.171	5
1	292	2.67E+05	0.541	0.326	10
2	247	1.92E+05	0.552	0.4	12.5
3	0	0	0	0	0
4	0	0	0	0	0
5	0	0	0	0	0
6	0	0	0	0	0
7	0	0	0	0	0
8	0	0	0	0	0
9	0	0	0	0	0

Ix: Calculated Distance At User Specified Thermal Flux, (m)
Ax: Calculated Hazard Area At User Specified Thermal Flux, (m)
Itau: Atmospheric Transmissivity
Ivf: Maximum View Factor
THs: User Specified Thermal Criterion, (kW/m2)

CPU Time = 1601 Seconds

Tank Overpressurization Explosion Model
==========
Last Revised Nov. 89

User Inputs:

Ambient temperature, (K)	293
Ambient pressure, (Pa)	1.01E+05
Container temperature, (K)	350
Container pressure, (Pa)	6.87E+06
Vapor space tank volume, (m3)	0.26

Tank is on ground or near a reflecting surface
Tank geometry is assumed to be cylindrical

Model Outputs:

Air Cp/Cv	1.4
Chemical Cp/Cv	1.03
Reduced temperature	1.19
Reduced pressure	67.8
Initial shock overpressure ratio	8.33

Calculated Overpressure

#	Xs	Ys	Rs	OPc
0	10	0	10	1.37E+05
1	20	0	20	2.05E+04
2	30	0	30	1.26E+04
3	40	0	40	1.25E+04
4	50	0	50	9569
5	60	0	60	7689
6	70	0	70	6390
7	80	0	80	5444
8	90	0	90	4727
9	100	0	100	4165

Xs: User specified downwind fenceline distance, m
Ys: User specified crosswind fenceline distance, m
Rs: Radial position, m
OPc: Overpressure at user specified fenceline distance, Pa

Calculated Distance and Area

#	OPs	OPe	Xc	Ac
0	3446	0.5	117	4.3E+04
1	6893	1	65.7	1.35E+04
2	8961	1.3	52.8	8763
3	2.06E+04	3	19.9	1241
4	3.44E+04	5	13	530
5	6.89E+04	10	10.9	374

OPs: User specified overpressure, Pa
OPe: User specified overpressure, Psi
Xc: Radial distance to user specified overpressure, m
Ac: Hazard area to user specified overpressure, m^2

CPU Time = 997 Seconds

Fireball Model
==========
Last revised Dec. 89

User Inputs:

Ambient temperature, (K)	293
Relative humidity, (Percent)	60
Fireball mass, (kg)	1.02E+04
Release temperature, (K)	350
Observer height, (m)	1
Visual range, (m) (Very Clear)	2E+04

Model Outputs:

Initial fireball volume, (m3)	1723
Initial fireball density, (kg/m3)	5.93
Initial fireball diameter, (m)	14.9
Fraction of combustion energy radiated	0.603
Heat of combustion, (kJ/kmol)	-7.51E+09
Maximum fireball diameter, (m)	92.4
Maximum fireball height, (m)	152
Fireball duration, (s)	9.69

Distances reported are measured from center of fireball

Calculated Incident Flux

#	Xs	Ys	Zs	TAU	THc
0	10	0	1.5	0.616	2842
1	20	0	1.5	0.615	2176
2	30	0	1.5	0.615	1780
3	40	0	1.5	0.614	1502
4	50	0	1.5	0.613	1287
5	60	0	1.5	0.611	1113
6	70	0	1.5	0.61	970
7	80	0	1.5	0.608	850
8	90	0	1.5	0.606	748
9	100	0	1.5	0.604	662

Xs: User specified fenceline distance, (m)
Ys: User specified crosswind distance, (m)
Zs: User specified elevation, (m)
TAU: Atmospheric transmissivity
THc: Calculated radiant heat at user specified fenceline, (kJ/m2)

Calculated Distance and Area

#	Xc	Ac	TAU	THs
0	515	8.32E+05	0.53	40
1	364	4.16E+05	0.551	80
2	325	3.31E+05	0.557	100
3	262	2.15E+05	0.569	150
4	253	2E+05	0.571	160
5	196	1.2E+05	0.583	250

Xc: Calculated distance at user specified radiant heat, (m)
Ac: Calculated hazard area at user specified radiant heat, (m^2)
TAU: Atmospheric transmissivity
THs: Radiant heat (kJ/m2)

CPU Time = 1580 Seconds

Hydrocarbon Pool Fires Model
==========
Last revised Dec. 1989

User specified flame temperature is used to estimate emissive power

User Inputs:

Ambient temperature, (K)	305
Relative humidity, (Percent)	50
Wind speed, (m/s)	20
Discharge temperature, (K)	305
Discharge time, (s)	300
Total volume discharged, (m3)	1.1E+05
Dike radius, (m)	1E+06
Flame temperature, (K)	916
Average emissive power, (kW/m2)	40
Burning rate, (m/s)	0.00025

Visual range (Very Clear) 20000 m
Spread on land

Model Outputs:

Liquid density at normal boiling point, (kg/m3)	593
Mass burning rate, (kg/m2/s)	0.148
Final pool radius, (m)	604
Depletion time, (s)	761
Flame height, (m)	872
Flame tilt from vertical, (degrees)	13.2
Flame drag, (m)	642

Fenceline Incident Flux Estimates

#	Xs	Ys	Itau	Ivf	Iflux
0	100	0	0.614	0.0972	2.39
1	200	0	0.566	0.882	20
2	300	0	0.539	0.753	16.2
3	400	0	0.52	0.582	12.1
4	500	0	0.506	0.464	9.39
5	600	0	0.495	0.379	7.51
6	700	0	0.486	0.315	6.12
7	800	0	0.478	0.264	5.04
8	900	0	0.47	0.223	4.19
9	1000	0	0.464	0.19	3.52

Xs: User Specified Fenceline Distance, (m)
Ys: User Specified Crosswind Distance, (m)
Itau: Atmospheric Transmissivity
Ivf: Maximum View Factor
Iflux: Incident Flux at Fenceline Distance, (kW/m2)

Hazard Distances and Areas At User Specified Flux

#	Ix	Ax	Itau	Ivf	THs
0	805	2.03E+06	0.477	0.262	5
1	474	7.04E+05	0.509	0.491	10
2	388	4.73E+05	0.522	0.599	12.5
3	0	0	0	0	0
4	0	0	0	0	0
5	0	0	0	0	0
6	0	0	0	0	0
7	0	0	0	0	0
8	0	0	0	0	0
9	0	0	0	0	0

Ix: Calculated Distance At User Specified Thermal Flux, (m)
Ax: Calculated Hazard Area At User Specified Thermal Flux, (m)
Itau: Atmospheric Transmissivity
Ivf: Maximum View Factor
THs: User Specified Thermal Criterion, (kW/m2)

Hydrocarbon Pool Fires Model
==========
Last revised Dec. 1989

User specified flame temperature is used to estimate emissive power

User Inputs:

Ambient temperature, (K)	305
Relative humidity, (Percent)	50
Wind speed, (m/s)	1
Discharge temperature, (K)	305
Discharge time, (s)	300
Total volume discharged, (m3)	1.1E+05
Dike radius, (m)	1E+06
Flame temperature, (K)	916
Average emissive power, (kW/m2)	40
Burning rate, (m/s)	0.00025

Visual range (Very Clear) 20000 m
Spread on land

Model Outputs:

Liquid density at normal boiling point, (kg/m3)	593
Mass burning rate, (kg/m2/s)	0.148
Final pool radius, (m)	604
Depletion time, (s)	761
Flame height, (m)	1636
Flame tilt from vertical, (degrees)	0
Flame drag, (m)	424

Fenceline Incident Flux Estimates

#	Xs	Ys	Itau	Ivf	Iflux
0	100	0	0.614	0.547	13.4
1	200	0	0.566	0.611	13.8
2	300	0	0.539	0.415	8.94
3	400	0	0.52	0.311	6.47
4	500	0	0.506	0.248	5.02
5	600	0	0.495	0.205	4.06
6	700	0	0.486	0.174	3.37
7	800	0	0.478	0.15	2.86
8	900	0	0.47	0.131	2.46
9	1000	0	0.464	0.115	2.14

Xs: User Specified Fenceline Distance, (m)
Ys: User Specified Crosswind Distance, (m)
Itau: Atmospheric Transmissivity
Ivf: Maximum View Factor
Iflux: Incident Flux at Fenceline Distance, (kW/m2)

Hazard Distances and Areas At User Specified Flux

#	Ix	Ax	Itau	Ivf	THs
0	502	7.91E+05	0.506	0.247	5
1	271	2.31E+05	0.545	0.458	10
2	233	1.71E+05	0.556	0.534	12.5
3	0	0	0	0	0
4	0	0	0	0	0
5	0	0	0	0	0
6	0	0	0	0	0
7	0	0	0	0	0
8	0	0	0	0	0
9	0	0	0	0	0

Ix: Calculated Distance At User Specified Thermal Flux, (m)
Ax: Calculated Hazard Area At User Specified Thermal Flux, (m)
Itau: Atmospheric Transmissivity
Ivf: Maximum View Factor
THs: User Specified Thermal Criterion, (kW/m2)

Bakken Crude Oil

Hydrocarbon Pool Fires Model
==========
Last revised Dec. 1989

User specified flame temperature is used to estimate emissive power

User Inputs:

Ambient temperature, (K)	305
Relative humidity, (Percent)	50
Wind speed, (m/s)	1
Discharge temperature, (K)	350
Discharge time, (s)	600
Total volume discharged, (m3)	1483
Dike radius, (m)	1E+06
Flame temperature, (K)	977
Average emissive power, (kW/m2)	51.6
Burning rate, (m/s)	0.000229

Visual range (Very Clear) 20000 m
Spread on land

Model Outputs:

Liquid density at normal boiling point, (kg/m3)	615
Mass burning rate, (kg/m2/s)	0.141
Final pool radius, (m)	64.6
Depletion time, (s)	656
Flame height, (m)	299
Flame tilt from vertical, (degrees)	0
Flame drag, (m)	59.8

Fenceline Incident Flux Estimates

#	Xs	Ys	Itau	Ivf	Iflux
0	100	0	0.614	0.173	5.5
1	200	0	0.566	0.0788	2.3
2	300	0	0.539	0.0455	1.26
3	400	0	0.52	0.0291	0.782
4	500	0	0.506	0.02	0.523
5	600	0	0.495	0.0145	0.371
6	700	0	0.486	0.0109	0.274
7	800	0	0.478	0.00852	0.21
8	900	0	0.47	0.00681	0.165
9	1000	0	0.464	0.00556	0.133

Xs: User Specified Fenceline Distance, (m)
Ys: User Specified Crosswind Distance, (m)
Itau: Atmospheric Transmissivity
Ivf: Maximum View Factor
Iflux: Incident Flux at Fenceline Distance, (kW/m2)

Hazard Distances and Areas At User Specified Flux

#	Ix	Ax	Itau	Ivf	THs
0	108	3.69E+04	0.608	0.159	5
1	59.2	1.1E+04	0.654	0.296	10
2	48.4	7351	0.671	0.361	12.5
3	0	0	0	0	0
4	0	0	0	0	0
5	0	0	0	0	0
6	0	0	0	0	0
7	0	0	0	0	0
8	0	0	0	0	0
9	0	0	0	0	0

Ix: Calculated Distance At User Specified Thermal Flux, (m)
Ax: Calculated Hazard Area At User Specified Thermal Flux, (m)
Itau: Atmospheric Transmissivity
Ivf: Maximum View Factor
THs: User Specified Thermal Criterion, (kW/m2)

Hydrocarbon Pool Fires Model
==========
Last revised Dec. 1989

User specified flame temperature is used to estimate emissive power

User Inputs:

Ambient temperature, (K)	305
Relative humidity, (Percent)	50
Wind speed, (m/s)	2
Discharge temperature, (K)	350
Discharge time, (s)	600
Total volume discharged, (m3)	1483
Dike radius, (m)	1E+06
Flame temperature, (K)	977
Average emissive power, (kW/m2)	51.6
Burning rate, (m/s)	0.000229

Visual range (Very Clear) 20000 m
Spread on land

Model Outputs:

Liquid density at normal boiling point, (kg/m3)	615
Mass burning rate, (kg/m2/s)	0.141
Final pool radius, (m)	64.6
Depletion time, (s)	656
Flame height, (m)	259
Flame tilt from vertical, (degrees)	0
Flame drag, (m)	65.8

Fenceline Incident Flux Estimates

#	Xs	Ys	Itau	Ivf	Iflux
0	100	0	0.614	0.19	6.03
1	200	0	0.566	0.084	2.46
2	300	0	0.539	0.047	1.31
3	400	0	0.52	0.0294	0.789
4	500	0	0.506	0.0199	0.52
5	600	0	0.495	0.0143	0.365
6	700	0	0.486	0.0107	0.268
7	800	0	0.478	0.00828	0.204
8	900	0	0.47	0.00659	0.16
9	1000	0	0.464	0.00537	0.129

Xs: User Specified Fenceline Distance, (m)
Ys: User Specified Crosswind Distance, (m)
Itau: Atmospheric Transmissivity
Ivf: Maximum View Factor
Iflux: Incident Flux at Fenceline Distance, (kW/m2)

Hazard Distances and Areas At User Specified Flux

#	Ix	Ax	Itau	Ivf	THs
0	117	4.28E+04	0.603	0.16	5
1	64.6	1.31E+04	0.647	0.299	10
2	52.9	8776	0.664	0.365	12.5
3	0	0	0	0	0
4	0	0	0	0	0
5	0	0	0	0	0
6	0	0	0	0	0
7	0	0	0	0	0
8	0	0	0	0	0
9	0	0	0	0	0

Ix: Calculated Distance At User Specified Thermal Flux, (m)
Ax: Calculated Hazard Area At User Specified Thermal Flux, (m)
Itau: Atmospheric Transmissivity
Ivf: Maximum View Factor
THs: User Specified Thermal Criterion, (kW/m2)

Hydrocarbon Pool Fires Model
==========
Last revised Dec. 1989

User specified flame temperature is used to estimate emissive power

User Inputs:

Ambient temperature, (K)	305
Relative humidity, (Percent)	50
Wind speed, (m/s)	3
Discharge temperature, (K)	350
Discharge time, (s)	600
Total volume discharged, (m3)	1483
Dike radius, (m)	1E+06
Flame temperature, (K)	977
Average emissive power, (kW/m2)	51.6
Burning rate, (m/s)	0.000229

Visual range (Very Clear) 20000 m
Spread on land

Model Outputs:

Liquid density at normal boiling point, (kg/m3)	615
Mass burning rate, (kg/m2/s)	0.141
Final pool radius, (m)	64.6
Depletion time, (s)	656
Flame height, (m)	238
Flame tilt from vertical, (degrees)	0
Flame drag, (m)	69.6

Fenceline Incident Flux Estimates

#	Xs	Ys	Itau	Ivf	Iflux
0	100	0	0.614	0.2	6.36
1	200	0	0.566	0.0869	2.54
2	300	0	0.539	0.0477	1.33
3	400	0	0.52	0.0295	0.791
4	500	0	0.506	0.0198	0.517
5	600	0	0.495	0.0141	0.36
6	700	0	0.486	0.0105	0.264
7	800	0	0.478	0.00812	0.2
8	900	0	0.47	0.00646	0.157
9	1000	0	0.464	0.00525	0.126

Xs: User Specified Fenceline Distance, (m)
Ys: User Specified Crosswind Distance, (m)
Itau: Atmospheric Transmissivity
Ivf: Maximum View Factor
Iflux: Incident Flux at Fenceline Distance, (kW/m2)

Hazard Distances and Areas At User Specified Flux

#	Ix	Ax	Itau	Ivf	THs
0	122	4.65E+04	0.601	0.161	5
1	67.9	1.44E+04	0.643	0.301	10
2	55.7	9741	0.659	0.367	12.5
3	0	0	0	0	0
4	0	0	0	0	0
5	0	0	0	0	0
6	0	0	0	0	0
7	0	0	0	0	0
8	0	0	0	0	0
9	0	0	0	0	0

Ix: Calculated Distance At User Specified Thermal Flux, (m)
Ax: Calculated Hazard Area At User Specified Thermal Flux, (m)
Itau: Atmospheric Transmissivity
Ivf: Maximum View Factor
THs: User Specified Thermal Criterion, (kW/m2)

Hydrocarbon Pool Fires Model
==========
Last revised Dec. 1989

User specified flame temperature is used to estimate emissive power

User Inputs:

Ambient temperature, (K)	305
Relative humidity, (Percent)	50
Wind speed, (m/s)	4
Discharge temperature, (K)	350
Discharge time, (s)	600
Total volume discharged, (m3)	1483
Dike radius, (m)	1E+06
Flame temperature, (K)	977
Average emissive power, (kW/m2)	51.6
Burning rate, (m/s)	0.000229

Visual range (Very Clear) 20000 m
Spread on land

Model Outputs:

Liquid density at normal boiling point, (kg/m3)	615
Mass burning rate, (kg/m2/s)	0.141
Final pool radius, (m)	64.6
Depletion time, (s)	656
Flame height, (m)	224
Flame tilt from vertical, (degrees)	0
Flame drag, (m)	72.4

Fenceline Incident Flux Estimates

#	Xs	Ys	Itau	Ivf	Iflux
0	100	0	0.614	0.208	6.6
1	200	0	0.566	0.089	2.6
2	300	0	0.539	0.0481	1.34
3	400	0	0.52	0.0295	0.791
4	500	0	0.506	0.0196	0.513
5	600	0	0.495	0.0139	0.357
6	700	0	0.486	0.0104	0.26
7	800	0	0.478	0.00801	0.197
8	900	0	0.47	0.00636	0.154
9	1000	0	0.464	0.00517	0.124

Xs: User Specified Fenceline Distance, (m)
Ys: User Specified Crosswind Distance, (m)
Itau: Atmospheric Transmissivity
Ivf: Maximum View Factor
Iflux: Incident Flux at Fenceline Distance, (kW/m2)

Hazard Distances and Areas At User Specified Flux

#	Ix	Ax	Itau	Ivf	THs
0	125	4.91E+04	0.599	0.162	5
1	70.4	1.55E+04	0.641	0.302	10
2	57.8	1.04E+04	0.656	0.369	12.5
3	0	0	0	0	0
4	0	0	0	0	0
5	0	0	0	0	0
6	0	0	0	0	0
7	0	0	0	0	0
8	0	0	0	0	0
9	0	0	0	0	0

Ix: Calculated Distance At User Specified Thermal Flux, (m)
Ax: Calculated Hazard Area At User Specified Thermal Flux, (m)
Itau: Atmospheric Transmissivity
Ivf: Maximum View Factor
THs: User Specified Thermal Criterion, (kW/m2)

Hydrocarbon Pool Fires Model
==========
Last revised Dec. 1989

User specified flame temperature is used to estimate emissive power

User Inputs:

Ambient temperature, (K)	305
Relative humidity, (Percent)	50
Wind speed, (m/s)	5
Discharge temperature, (K)	350
Discharge time, (s)	600
Total volume discharged, (m3)	1483
Dike radius, (m)	1E+06
Flame temperature, (K)	977
Average emissive power, (kW/m2)	51.6
Burning rate, (m/s)	0.000229

Visual range (Very Clear) 20000 m
Spread on land

Model Outputs:

Liquid density at normal boiling point, (kg/m3)	615
Mass burning rate, (kg/m2/s)	0.141
Final pool radius, (m)	64.6
Depletion time, (s)	656
Flame height, (m)	214
Flame tilt from vertical, (degrees)	0
Flame drag, (m)	74.7

Fenceline Incident Flux Estimates

#	Xs	Ys	Itau	Ivf	Iflux
0	100	0	0.614	0.214	6.8
1	200	0	0.566	0.0905	2.64
2	300	0	0.539	0.0484	1.35
3	400	0	0.52	0.0294	0.79
4	500	0	0.506	0.0195	0.511
5	600	0	0.495	0.0138	0.354
6	700	0	0.486	0.0103	0.258
7	800	0	0.478	0.00792	0.195
8	900	0	0.47	0.00628	0.153
9	1000	0	0.464	0.0051	0.122

Xs: User Specified Fenceline Distance, (m)
Ys: User Specified Crosswind Distance, (m)
Itau: Atmospheric Transmissivity
Ivf: Maximum View Factor
Iflux: Incident Flux at Fenceline Distance, (kW/m2)

Hazard Distances and Areas At User Specified Flux

#	Ix	Ax	Itau	Ivf	THs
0	128	5.12E+04	0.597	0.162	5
1	72.4	1.64E+04	0.638	0.303	10
2	59.5	1.11E+04	0.654	0.37	12.5
3	0	0	0	0	0
4	0	0	0	0	0
5	0	0	0	0	0
6	0	0	0	0	0
7	0	0	0	0	0
8	0	0	0	0	0
9	0	0	0	0	0

Ix: Calculated Distance At User Specified Thermal Flux, (m)
Ax: Calculated Hazard Area At User Specified Thermal Flux, (m)
Itau: Atmospheric Transmissivity
Ivf: Maximum View Factor
THs: User Specified Thermal Criterion, (kW/m2)

Hydrocarbon Pool Fires Model
==========
Last revised Dec. 1989

User specified flame temperature is used to estimate emissive power

User Inputs:

Ambient temperature, (K)	305
Relative humidity, (Percent)	50
Wind speed, (m/s)	10
Discharge temperature, (K)	350
Discharge time, (s)	600
Total volume discharged, (m3)	1483
Dike radius, (m)	1E+06
Flame temperature, (K)	977
Average emissive power, (kW/m2)	51.6
Burning rate, (m/s)	0.000229

Visual range (Very Clear) 20000 m
Spread on land

Model Outputs:

Liquid density at normal boiling point, (kg/m3)	615
Mass burning rate, (kg/m2/s)	0.141
Final pool radius, (m)	64.6
Depletion time, (s)	656
Flame height, (m)	185
Flame tilt from vertical, (degrees)	25.2
Flame drag, (m)	82.2

Fenceline Incident Flux Estimates

#	Xs	Ys	Itau	Ivf	Iflux
0	100	0	0.614	0.351	11.1
1	200	0	0.566	0.142	4.15
2	300	0	0.539	0.067	1.86
3	400	0	0.52	0.0366	0.982
4	500	0	0.506	0.0226	0.589
5	600	0	0.495	0.0152	0.388
6	700	0	0.486	0.0108	0.272
7	800	0	0.478	0.00813	0.2
8	900	0	0.47	0.00631	0.153
9	1000	0	0.464	0.00504	0.121

Xs: User Specified Fenceline Distance, (m)
Ys: User Specified Crosswind Distance, (m)
Itau: Atmospheric Transmissivity
Ivf: Maximum View Factor
Iflux: Incident Flux at Fenceline Distance, (kW/m2)

Hazard Distances and Areas At User Specified Flux

#	Ix	Ax	Itau	Ivf	THs
0	179	1.01E+05	0.574	0.169	5
1	109	3.75E+04	0.608	0.319	10
2	90.2	2.55E+04	0.622	0.39	12.5
3	0	0	0	0	0
4	0	0	0	0	0
5	0	0	0	0	0
6	0	0	0	0	0
7	0	0	0	0	0
8	0	0	0	0	0
9	0	0	0	0	0

Ix: Calculated Distance At User Specified Thermal Flux, (m)
Ax: Calculated Hazard Area At User Specified Thermal Flux, (m)
Itau: Atmospheric Transmissivity
Ivf: Maximum View Factor
THs: User Specified Thermal Criterion, (kW/m2)

Hydrocarbon Pool Fires Model
==========
Last revised Dec. 1989

User specified flame temperature is used to estimate emissive power

User Inputs:

Ambient temperature, (K)	305
Relative humidity, (Percent)	50
Wind speed, (m/s)	20
Discharge temperature, (K)	350
Discharge time, (s)	600
Total volume discharged, (m3)	1483
Dike radius, (m)	1E+06
Flame temperature, (K)	977
Average emissive power, (kW/m2)	51.6
Burning rate, (m/s)	0.000229

Visual range (Very Clear) 20000 m
Spread on land

Model Outputs:

Liquid density at normal boiling point, (kg/m3)	615
Mass burning rate, (kg/m2/s)	0.141
Final pool radius, (m)	64.6
Depletion time, (s)	656
Flame height, (m)	160
Flame tilt from vertical, (degrees)	50.2
Flame drag, (m)	90.4

Fenceline Incident Flux Estimates

#	Xs	Ys	Itau	Ivf	Iflux
0	100	0	0.614	0.589	18.7
1	200	0	0.566	0.227	6.65
2	300	0	0.539	0.0773	2.15
3	400	0	0.52	0.0348	0.934
4	500	0	0.506	0.0194	0.507
5	600	0	0.495	0.0123	0.315
6	700	0	0.486	0.00848	0.213
7	800	0	0.478	0.0062	0.153
8	900	0	0.47	0.00472	0.115
9	1000	0	0.464	0.00372	0.0891

Xs: User Specified Fenceline Distance, (m)
Ys: User Specified Crosswind Distance, (m)
Itau: Atmospheric Transmissivity
Ivf: Maximum View Factor
Iflux: Incident Flux at Fenceline Distance, (kW/m2)

Hazard Distances and Areas At User Specified Flux

#	Ix	Ax	Itau	Ivf	THs
0	224	1.57E+05	0.558	0.173	5
1	164	8.49E+04	0.58	0.334	10
2	143	6.4E+04	0.59	0.411	12.5
3	0	0	0	0	0
4	0	0	0	0	0
5	0	0	0	0	0
6	0	0	0	0	0
7	0	0	0	0	0
8	0	0	0	0	0
9	0	0	0	0	0

Ix: Calculated Distance At User Specified Thermal Flux, (m)
Ax: Calculated Hazard Area At User Specified Thermal Flux, (m)
Itau: Atmospheric Transmissivity
Ivf: Maximum View Factor
THs: User Specified Thermal Criterion, (kW/m2)

CPU Time = 1594 Seconds

Hydrocarbon Pool Fires Model
==========
Last revised Dec. 1989

User specified flame temperature is used to estimate emissive power

User Inputs:

Ambient temperature, (K)	305
Relative humidity, (Percent)	50
Wind speed, (m/s)	1
Discharge temperature, (K)	350
Discharge time, (s)	600
Total volume discharged, (m3)	8899
Dike radius, (m)	1E+06
Flame temperature, (K)	977
Average emissive power, (kW/m2)	51.6
Burning rate, (m/s)	0.000229

Visual range (Very Clear) 20000 m
Spread on land

Model Outputs:

Liquid density at normal boiling point, (kg/m3)	615
Mass burning rate, (kg/m2/s)	0.141
Final pool radius, (m)	159
Depletion time, (s)	712
Flame height, (m)	581
Flame tilt from vertical, (degrees)	0
Flame drag, (m)	139

Fenceline Incident Flux Estimates

#	Xs	Ys	Itau	Ivf	Iflux
0	100	0	0.614	0.405	12.9
1	200	0	0.566	0.201	5.88
2	300	0	0.539	0.129	3.59
3	400	0	0.52	0.0912	2.45
4	500	0	0.506	0.0679	1.77
5	600	0	0.495	0.0523	1.34
6	700	0	0.486	0.0413	1.04
7	800	0	0.478	0.0334	0.823
8	900	0	0.47	0.0274	0.665
9	1000	0	0.464	0.0228	0.547

Xs: User Specified Fenceline Distance, (m)
Ys: User Specified Crosswind Distance, (m)
Itau: Atmospheric Transmissivity
Ivf: Maximum View Factor
Iflux: Incident Flux at Fenceline Distance, (kW/m2)

Hazard Distances and Areas At User Specified Flux

#	Ix	Ax	Itau	Ivf	THs
0	229	1.65E+05	0.557	0.174	5
1	126	4.96E+04	0.598	0.324	10
2	103	3.3E+04	0.612	0.395	12.5
3	0	0	0	0	0
4	0	0	0	0	0
5	0	0	0	0	0
6	0	0	0	0	0
7	0	0	0	0	0
8	0	0	0	0	0
9	0	0	0	0	0

Ix: Calculated Distance At User Specified Thermal Flux, (m)
Ax: Calculated Hazard Area At User Specified Thermal Flux, (m)
Itau: Atmospheric Transmissivity
Ivf: Maximum View Factor
THs: User Specified Thermal Criterion, (kW/m2)

Hydrocarbon Pool Fires Model
==========
Last revised Dec. 1989

User specified flame temperature is used to estimate emissive power

User Inputs:

Ambient temperature, (K)	305
Relative humidity, (Percent)	50
Wind speed, (m/s)	2
Discharge temperature, (K)	350
Discharge time, (s)	600
Total volume discharged, (m3)	8899
Dike radius, (m)	1E+06
Flame temperature, (K)	977
Average emissive power, (kW/m2)	51.6
Burning rate, (m/s)	0.000229

Visual range (Very Clear) 20000 m
Spread on land

Model Outputs:

Liquid density at normal boiling point, (kg/m3)	615
Mass burning rate, (kg/m2/s)	0.141
Final pool radius, (m)	159
Depletion time, (s)	712
Flame height, (m)	502
Flame tilt from vertical, (degrees)	0
Flame drag, (m)	152

Fenceline Incident Flux Estimates

#	Xs	Ys	Itau	Ivf	Iflux
0	100	0	0.614	0.45	14.3
1	200	0	0.566	0.221	6.46
2	300	0	0.539	0.14	3.89
3	400	0	0.52	0.0973	2.61
4	500	0	0.506	0.0712	1.86
5	600	0	0.495	0.0541	1.38
6	700	0	0.486	0.0422	1.06
7	800	0	0.478	0.0337	0.83
8	900	0	0.47	0.0274	0.666
9	1000	0	0.464	0.0227	0.544

Xs: User Specified Fenceline Distance, (m)
Ys: User Specified Crosswind Distance, (m)
Itau: Atmospheric Transmissivity
Ivf: Maximum View Factor
Iflux: Incident Flux at Fenceline Distance, (kW/m2)

Hazard Distances and Areas At User Specified Flux

#	Ix	Ax	Itau	Ivf	THs
0	247	1.91E+05	0.552	0.175	5
1	137	5.91E+04	0.592	0.327	10
2	112	3.96E+04	0.606	0.399	12.5
3	0	0	0	0	0
4	0	0	0	0	0
5	0	0	0	0	0
6	0	0	0	0	0
7	0	0	0	0	0
8	0	0	0	0	0
9	0	0	0	0	0

Ix: Calculated Distance At User Specified Thermal Flux, (m)
Ax: Calculated Hazard Area At User Specified Thermal Flux, (m)
Itau: Atmospheric Transmissivity
Ivf: Maximum View Factor
THs: User Specified Thermal Criterion, (kW/m2)

Hydrocarbon Pool Fires Model
==========
Last revised Dec. 1989

User specified flame temperature is used to estimate emissive power

User Inputs:

Ambient temperature, (K)	305
Relative humidity, (Percent)	50
Wind speed, (m/s)	3
Discharge temperature, (K)	350
Discharge time, (s)	600
Total volume discharged, (m3)	8899
Dike radius, (m)	1E+06
Flame temperature, (K)	977
Average emissive power, (kW/m2)	51.6
Burning rate, (m/s)	0.000229

Visual range (Very Clear) 20000 m
Spread on land

Model Outputs:

Liquid density at normal boiling point, (kg/m3)	615
Mass burning rate, (kg/m2/s)	0.141
Final pool radius, (m)	159
Depletion time, (s)	712
Flame height, (m)	461
Flame tilt from vertical, (degrees)	0
Flame drag, (m)	161

Fenceline Incident Flux Estimates

#	Xs	Ys	Itau	Ivf	Iflux
0	100	0	0.614	0.48	15.2
1	200	0	0.566	0.233	6.82
2	300	0	0.539	0.146	4.07
3	400	0	0.52	0.101	2.7
4	500	0	0.506	0.073	1.91
5	600	0	0.495	0.0549	1.4
6	700	0	0.486	0.0425	1.07
7	800	0	0.478	0.0337	0.832
8	900	0	0.47	0.0273	0.664
9	1000	0	0.464	0.0225	0.54

Xs: User Specified Fenceline Distance, (m)
Ys: User Specified Crosswind Distance, (m)
Itau: Atmospheric Transmissivity
Ivf: Maximum View Factor
Iflux: Incident Flux at Fenceline Distance, (kW/m2)

Hazard Distances and Areas At User Specified Flux

#	Ix	Ax	Itau	Ivf	THs
0	257	2.07E+05	0.549	0.176	5
1	144	6.55E+04	0.589	0.329	10
2	119	4.41E+04	0.602	0.402	12.5
3	0	0	0	0	0
4	0	0	0	0	0
5	0	0	0	0	0
6	0	0	0	0	0
7	0	0	0	0	0
8	0	0	0	0	0
9	0	0	0	0	0

Ix: Calculated Distance At User Specified Thermal Flux, (m)
Ax: Calculated Hazard Area At User Specified Thermal Flux, (m)
Itau: Atmospheric Transmissivity
Ivf: Maximum View Factor
THs: User Specified Thermal Criterion, (kW/m2)

Hydrocarbon Pool Fires Model
==========
Last revised Dec. 1989

User specified flame temperature is used to estimate emissive power

User Inputs:

Ambient temperature, (K)	305
Relative humidity, (Percent)	50
Wind speed, (m/s)	4
Discharge temperature, (K)	350
Discharge time, (s)	600
Total volume discharged, (m3)	8899
Dike radius, (m)	1E+06
Flame temperature, (K)	977
Average emissive power, (kW/m2)	51.6
Burning rate, (m/s)	0.000229

Visual range (Very Clear) 20000 m
Spread on land

Model Outputs:

Liquid density at normal boiling point, (kg/m3)	615
Mass burning rate, (kg/m2/s)	0.141
Final pool radius, (m)	159
Depletion time, (s)	712
Flame height, (m)	434
Flame tilt from vertical, (degrees)	0
Flame drag, (m)	168

Fenceline Incident Flux Estimates

#	Xs	Ys	Itau	Ivf	Iflux
0	100	0	0.614	0.503	15.9
1	200	0	0.566	0.243	7.09
2	300	0	0.539	0.151	4.2
3	400	0	0.52	0.103	2.77
4	500	0	0.506	0.0742	1.94
5	600	0	0.495	0.0554	1.42
6	700	0	0.486	0.0427	1.07
7	800	0	0.478	0.0337	0.831
8	900	0	0.47	0.0272	0.661
9	1000	0	0.464	0.0224	0.537

Xs: User Specified Fenceline Distance, (m)
Ys: User Specified Crosswind Distance, (m)
Itau: Atmospheric Transmissivity
Ivf: Maximum View Factor
Iflux: Incident Flux at Fenceline Distance, (kW/m2)

Hazard Distances and Areas At User Specified Flux

#	Ix	Ax	Itau	Ivf	THs
0	264	2.18E+05	0.547	0.177	5
1	150	7.04E+04	0.586	0.33	10
2	123	4.76E+04	0.6	0.404	12.5
3	0	0	0	0	0
4	0	0	0	0	0
5	0	0	0	0	0
6	0	0	0	0	0
7	0	0	0	0	0
8	0	0	0	0	0
9	0	0	0	0	0

Ix: Calculated Distance At User Specified Thermal Flux, (m)
Ax: Calculated Hazard Area At User Specified Thermal Flux, (m)
Itau: Atmospheric Transmissivity
Ivf: Maximum View Factor
THs: User Specified Thermal Criterion, (kW/m2)

Hydrocarbon Pool Fires Model
==========
Last revised Dec. 1989

User specified flame temperature is used to estimate emissive power

User Inputs:

Ambient temperature, (K)	305
Relative humidity, (Percent)	50
Wind speed, (m/s)	5
Discharge temperature, (K)	350
Discharge time, (s)	600
Total volume discharged, (m3)	8899
Dike radius, (m)	1E+06
Flame temperature, (K)	977
Average emissive power, (kW/m2)	51.6
Burning rate, (m/s)	0.000229

Visual range (Very Clear) 20000 m
Spread on land

Model Outputs:

Liquid density at normal boiling point, (kg/m3)	615
Mass burning rate, (kg/m2/s)	0.141
Final pool radius, (m)	159
Depletion time, (s)	712
Flame height, (m)	414
Flame tilt from vertical, (degrees)	0
Flame drag, (m)	173

Fenceline Incident Flux Estimates

#	Xs	Ys	Itau	Ivf	Iflux
0	100	0	0.614	0.521	16.5
1	200	0	0.566	0.25	7.31
2	300	0	0.539	0.155	4.31
3	400	0	0.52	0.105	2.82
4	500	0	0.506	0.075	1.96
5	600	0	0.495	0.0557	1.43
6	700	0	0.486	0.0428	1.07
7	800	0	0.478	0.0337	0.831
8	900	0	0.47	0.0271	0.659
9	1000	0	0.464	0.0223	0.534

Xs: User Specified Fenceline Distance, (m)
Ys: User Specified Crosswind Distance, (m)
Itau: Atmospheric Transmissivity
Ivf: Maximum View Factor
Iflux: Incident Flux at Fenceline Distance, (kW/m2)

Hazard Distances and Areas At User Specified Flux

#	Ix	Ax	Itau	Ivf	THs
0	269	2.27E+05	0.546	0.177	5
1	154	7.45E+04	0.584	0.331	10
2	127	5.05E+04	0.598	0.405	12.5
3	0	0	0	0	0
4	0	0	0	0	0
5	0	0	0	0	0
6	0	0	0	0	0
7	0	0	0	0	0
8	0	0	0	0	0
9	0	0	0	0	0

Ix: Calculated Distance At User Specified Thermal Flux, (m)
Ax: Calculated Hazard Area At User Specified Thermal Flux, (m)
Itau: Atmospheric Transmissivity
Ivf: Maximum View Factor
THs: User Specified Thermal Criterion, (kW/m2)

Hydrocarbon Pool Fires Model
==========
Last revised Dec. 1989

User specified flame temperature is used to estimate emissive power

User Inputs:

Ambient temperature, (K)	305
Relative humidity, (Percent)	50
Wind speed, (m/s)	10
Discharge temperature, (K)	350
Discharge time, (s)	600
Total volume discharged, (m3)	8899
Dike radius, (m)	1E+06
Flame temperature, (K)	977
Average emissive power, (kW/m2)	51.6
Burning rate, (m/s)	0.000229

Visual range (Very Clear) 20000 m
Spread on land

Model Outputs:

Liquid density at normal boiling point, (kg/m3)	615
Mass burning rate, (kg/m2/s)	0.141
Final pool radius, (m)	159
Depletion time, (s)	712
Flame height, (m)	358
Flame tilt from vertical, (degrees)	0
Flame drag, (m)	190

Fenceline Incident Flux Estimates

#	Xs	Ys	Itau	Ivf	Iflux
0	100	0	0.614	0.584	18.5
1	200	0	0.566	0.275	8.05
2	300	0	0.539	0.167	4.64
3	400	0	0.52	0.11	2.96
4	500	0	0.506	0.0773	2.02
5	600	0	0.495	0.0565	1.45
6	700	0	0.486	0.0428	1.07
7	800	0	0.478	0.0334	0.825
8	900	0	0.47	0.0267	0.649
9	1000	0	0.464	0.0218	0.523

Xs: User Specified Fenceline Distance, (m)
Ys: User Specified Crosswind Distance, (m)
Itau: Atmospheric Transmissivity
Ivf: Maximum View Factor
Iflux: Incident Flux at Fenceline Distance, (kW/m2)

Hazard Distances and Areas At User Specified Flux

#	Ix	Ax	Itau	Ivf	THs
0	285	2.55E+05	0.542	0.179	5
1	168	8.85E+04	0.578	0.335	10
2	139	6.08E+04	0.591	0.409	12.5
3	0	0	0	0	0
4	0	0	0	0	0
5	0	0	0	0	0
6	0	0	0	0	0
7	0	0	0	0	0
8	0	0	0	0	0
9	0	0	0	0	0

Ix: Calculated Distance At User Specified Thermal Flux, (m)
Ax: Calculated Hazard Area At User Specified Thermal Flux, (m)
Itau: Atmospheric Transmissivity
Ivf: Maximum View Factor
THs: User Specified Thermal Criterion, (kW/m2)

Hydrocarbon Pool Fires Model
==========
Last revised Dec. 1989

User specified flame temperature is used to estimate emissive power

User Inputs:

Ambient temperature, (K)	305
Relative humidity, (Percent)	50
Wind speed, (m/s)	20
Discharge temperature, (K)	350
Discharge time, (s)	600
Total volume discharged, (m3)	8899
Dike radius, (m)	1E+06
Flame temperature, (K)	977
Average emissive power, (kW/m2)	51.6
Burning rate, (m/s)	0.000229

Visual range (Very Clear) 20000 m
Spread on land

Model Outputs:

Liquid density at normal boiling point, (kg/m3)	615
Mass burning rate, (kg/m2/s)	0.141
Final pool radius, (m)	159
Depletion time, (s)	712
Flame height, (m)	310
Flame tilt from vertical, (degrees)	42
Flame drag, (m)	210

Observer Distance 100 Is Within Flame. Value is in error

Fenceline Incident Flux Estimates

#	Xs	Ys	Itau	Ivf	Iflux
0	100	0	0.614	0.874	27.7
1	200	0	0.566	0.582	17
2	300	0	0.539	0.372	10.4
3	400	0	0.52	0.226	6.06
4	500	0	0.506	0.136	3.54
5	600	0	0.495	0.0856	2.19
6	700	0	0.486	0.0576	1.44
7	800	0	0.478	0.041	1.01
8	900	0	0.47	0.0305	0.74
9	1000	0	0.464	0.0235	0.563

Xs: User Specified Fenceline Distance, (m)
Ys: User Specified Crosswind Distance, (m)
Itau: Atmospheric Transmissivity
Ivf: Maximum View Factor
Iflux: Incident Flux at Fenceline Distance, (kW/m2)

Hazard Distances and Areas At User Specified Flux

#	Ix	Ax	Itau	Ivf	THs
0	435	5.94E+05	0.514	0.188	5
1	307	2.95E+05	0.537	0.361	10
2	263	2.16E+05	0.548	0.442	12.5
3	0	0	0	0	0
4	0	0	0	0	0
5	0	0	0	0	0
6	0	0	0	0	0
7	0	0	0	0	0
8	0	0	0	0	0
9	0	0	0	0	0

Ix: Calculated Distance At User Specified Thermal Flux, (m)
Ax: Calculated Hazard Area At User Specified Thermal Flux, (m)
Itau: Atmospheric Transmissivity
Ivf: Maximum View Factor
THs: User Specified Thermal Criterion, (kW/m2)

CPU Time = 292 Seconds

Hydrocarbon Pool Fires Model
==========
Last revised Dec. 1989

User specified flame temperature is used to estimate emissive power

User Inputs:

Ambient temperature, (K)	305
Relative humidity, (Percent)	50
Wind speed, (m/s)	1
Discharge temperature, (K)	350
Discharge time, (s)	600
Total volume discharged, (m3)	1.18E+04
Dike radius, (m)	1E+06
Flame temperature, (K)	977
Average emissive power, (kW/m2)	51.6
Burning rate, (m/s)	0.000229

Visual range (Very Clear) 20000 m
Spread on land

Model Outputs:

Liquid density at normal boiling point, (kg/m3)	615
Mass burning rate, (kg/m2/s)	0.141
Final pool radius, (m)	184
Depletion time, (s)	725
Flame height, (m)	646
Flame tilt from vertical, (degrees)	0
Flame drag, (m)	159

Fenceline Incident Flux Estimates

#	Xs	Ys	Itau	Ivf	Iflux
0	100	0	0.614	0.465	14.7
1	200	0	0.566	0.231	6.76
2	300	0	0.539	0.15	4.17
3	400	0	0.52	0.107	2.88
4	500	0	0.506	0.0807	2.11
5	600	0	0.495	0.0629	1.61
6	700	0	0.486	0.0501	1.26
7	800	0	0.478	0.0408	1.01
8	900	0	0.47	0.0337	0.819
9	1000	0	0.464	0.0283	0.677

Xs: User Specified Fenceline Distance, (m)
Ys: User Specified Crosswind Distance, (m)
Itau: Atmospheric Transmissivity
Ivf: Maximum View Factor
Iflux: Incident Flux at Fenceline Distance, (kW/m2)

Hazard Distances and Areas At User Specified Flux

#	Ix	Ax	Itau	Ivf	THs
0	258	2.09E+05	0.549	0.176	5
1	142	6.31E+04	0.59	0.328	10
2	116	4.21E+04	0.604	0.401	12.5
3	0	0	0	0	0
4	0	0	0	0	0
5	0	0	0	0	0
6	0	0	0	0	0
7	0	0	0	0	0
8	0	0	0	0	0
9	0	0	0	0	0

Ix: Calculated Distance At User Specified Thermal Flux, (m)
Ax: Calculated Hazard Area At User Specified Thermal Flux, (m)
Itau: Atmospheric Transmissivity
Ivf: Maximum View Factor
THs: User Specified Thermal Criterion, (kW/m2)

Hydrocarbon Pool Fires Model
==========
Last revised Dec. 1989

User specified flame temperature is used to estimate emissive power

User Inputs:

Ambient temperature, (K)	305
Relative humidity, (Percent)	50
Wind speed, (m/s)	2
Discharge temperature, (K)	350
Discharge time, (s)	600
Total volume discharged, (m3)	1.18E+04
Dike radius, (m)	1E+06
Flame temperature, (K)	977
Average emissive power, (kW/m2)	51.6
Burning rate, (m/s)	0.000229

Visual range (Very Clear) 20000 m
Spread on land

Model Outputs:

Liquid density at normal boiling point, (kg/m3)	615
Mass burning rate, (kg/m2/s)	0.141
Final pool radius, (m)	184
Depletion time, (s)	725
Flame height, (m)	558
Flame tilt from vertical, (degrees)	0
Flame drag, (m)	174

Fenceline Incident Flux Estimates

#	Xs	Ys	Itau	Ivf	Iflux
0	100	0	0.614	0.517	16.4
1	200	0	0.566	0.255	7.44
2	300	0	0.539	0.163	4.54
3	400	0	0.52	0.115	3.09
4	500	0	0.506	0.0854	2.23
5	600	0	0.495	0.0656	1.68
6	700	0	0.486	0.0516	1.3
7	800	0	0.478	0.0415	1.02
8	900	0	0.47	0.034	0.826
9	1000	0	0.464	0.0283	0.677

Xs: User Specified Fenceline Distance, (m)
Ys: User Specified Crosswind Distance, (m)
Itau: Atmospheric Transmissivity
Ivf: Maximum View Factor
Iflux: Incident Flux at Fenceline Distance, (kW/m2)

Hazard Distances and Areas At User Specified Flux

#	Ix	Ax	Itau	Ivf	THs
0	278	2.42E+05	0.544	0.178	5
1	155	7.52E+04	0.584	0.332	10
2	127	5.05E+04	0.598	0.405	12.5
3	0	0	0	0	0
4	0	0	0	0	0
5	0	0	0	0	0
6	0	0	0	0	0
7	0	0	0	0	0
8	0	0	0	0	0
9	0	0	0	0	0

Ix: Calculated Distance At User Specified Thermal Flux, (m)
Ax: Calculated Hazard Area At User Specified Thermal Flux, (m)
Itau: Atmospheric Transmissivity
Ivf: Maximum View Factor
THs: User Specified Thermal Criterion, (kW/m2)

Hydrocarbon Pool Fires Model
==========
Last revised Dec. 1989

User specified flame temperature is used to estimate emissive power

User Inputs:

Ambient temperature, (K)	305
Relative humidity, (Percent)	50
Wind speed, (m/s)	3
Discharge temperature, (K)	350
Discharge time, (s)	600
Total volume discharged, (m3)	1.18E+04
Dike radius, (m)	1E+06
Flame temperature, (K)	977
Average emissive power, (kW/m2)	51.6
Burning rate, (m/s)	0.000229

Visual range (Very Clear) 20000 m
Spread on land

Model Outputs:

Liquid density at normal boiling point, (kg/m3)	615
Mass burning rate, (kg/m2/s)	0.141
Final pool radius, (m)	184
Depletion time, (s)	725
Flame height, (m)	513
Flame tilt from vertical, (degrees)	0
Flame drag, (m)	184

Fenceline Incident Flux Estimates

#	Xs	Ys	Itau	Ivf	Iflux
0	100	0	0.614	0.55	17.5
1	200	0	0.566	0.269	7.87
2	300	0	0.539	0.171	4.77
3	400	0	0.52	0.12	3.21
4	500	0	0.506	0.088	2.3
5	600	0	0.495	0.067	1.71
6	700	0	0.486	0.0523	1.31
7	800	0	0.478	0.0418	1.03
8	900	0	0.47	0.0341	0.827
9	1000	0	0.464	0.0282	0.675

Xs: User Specified Fenceline Distance, (m)
Ys: User Specified Crosswind Distance, (m)
Itau: Atmospheric Transmissivity
Ivf: Maximum View Factor
Iflux: Incident Flux at Fenceline Distance, (kW/m2)

Hazard Distances and Areas At User Specified Flux

#	Ix	Ax	Itau	Ivf	THs
0	289	2.62E+05	0.541	0.179	5
1	163	8.34E+04	0.58	0.334	10
2	134	5.62E+04	0.594	0.407	12.5
3	0	0	0	0	0
4	0	0	0	0	0
5	0	0	0	0	0
6	0	0	0	0	0
7	0	0	0	0	0
8	0	0	0	0	0
9	0	0	0	0	0

Ix: Calculated Distance At User Specified Thermal Flux, (m)
Ax: Calculated Hazard Area At User Specified Thermal Flux, (m)
Itau: Atmospheric Transmissivity
Ivf: Maximum View Factor
THs: User Specified Thermal Criterion, (kW/m2)

Hydrocarbon Pool Fires Model
==========
Last revised Dec. 1989

User specified flame temperature is used to estimate emissive power

User Inputs:

Ambient temperature, (K)	305
Relative humidity, (Percent)	50
Wind speed, (m/s)	4
Discharge temperature, (K)	350
Discharge time, (s)	600
Total volume discharged, (m3)	1.18E+04
Dike radius, (m)	1E+06
Flame temperature, (K)	977
Average emissive power, (kW/m2)	51.6
Burning rate, (m/s)	0.000229

Visual range (Very Clear) 20000 m
Spread on land

Model Outputs:

Liquid density at normal boiling point, (kg/m3)	615
Mass burning rate, (kg/m2/s)	0.141
Final pool radius, (m)	184
Depletion time, (s)	725
Flame height, (m)	483
Flame tilt from vertical, (degrees)	0
Flame drag, (m)	192

Fenceline Incident Flux Estimates

#	Xs	Ys	Itau	Ivf	Iflux
0	100	0	0.614	0.575	18.2
1	200	0	0.566	0.28	8.2
2	300	0	0.539	0.177	4.94
3	400	0	0.52	0.123	3.3
4	500	0	0.506	0.0898	2.35
5	600	0	0.495	0.0678	1.73
6	700	0	0.486	0.0527	1.32
7	800	0	0.478	0.0419	1.03
8	900	0	0.47	0.034	0.826
9	1000	0	0.464	0.0281	0.673

Xs: User Specified Fenceline Distance, (m)
Ys: User Specified Crosswind Distance, (m)
Itau: Atmospheric Transmissivity
Ivf: Maximum View Factor
Iflux: Incident Flux at Fenceline Distance, (kW/m2)

Hazard Distances and Areas At User Specified Flux

#	Ix	Ax	Itau	Ivf	THs
0	297	2.77E+05	0.539	0.18	5
1	169	8.97E+04	0.578	0.335	10
2	139	6.07E+04	0.591	0.409	12.5
3	0	0	0	0	0
4	0	0	0	0	0
5	0	0	0	0	0
6	0	0	0	0	0
7	0	0	0	0	0
8	0	0	0	0	0
9	0	0	0	0	0

Ix: Calculated Distance At User Specified Thermal Flux, (m)
Ax: Calculated Hazard Area At User Specified Thermal Flux, (m)
Itau: Atmospheric Transmissivity
Ivf: Maximum View Factor
THs: User Specified Thermal Criterion, (kW/m2)

Hydrocarbon Pool Fires Model
==========
Last revised Dec. 1989

User specified flame temperature is used to estimate emissive power

User Inputs:

Ambient temperature, (K)	305
Relative humidity, (Percent)	50
Wind speed, (m/s)	5
Discharge temperature, (K)	350
Discharge time, (s)	600
Total volume discharged, (m3)	1.18E+04
Dike radius, (m)	1E+06
Flame temperature, (K)	977
Average emissive power, (kW/m2)	51.6
Burning rate, (m/s)	0.000229

Visual range (Very Clear) 20000 m
Spread on land

Model Outputs:

Liquid density at normal boiling point, (kg/m3)	615
Mass burning rate, (kg/m2/s)	0.141
Final pool radius, (m)	184
Depletion time, (s)	725
Flame height, (m)	461
Flame tilt from vertical, (degrees)	0
Flame drag, (m)	198

Fenceline Incident Flux Estimates

#	Xs	Ys	Itau	Ivf	Iflux
0	100	0	0.614	0.595	18.9
1	200	0	0.566	0.289	8.46
2	300	0	0.539	0.182	5.07
3	400	0	0.52	0.126	3.37
4	500	0	0.506	0.0911	2.38
5	600	0	0.495	0.0685	1.75
6	700	0	0.486	0.053	1.33
7	800	0	0.478	0.042	1.04
8	900	0	0.47	0.034	0.826
9	1000	0	0.464	0.028	0.671

Xs: User Specified Fenceline Distance, (m)
Ys: User Specified Crosswind Distance, (m)
Itau: Atmospheric Transmissivity
Ivf: Maximum View Factor
Iflux: Incident Flux at Fenceline Distance, (kW/m2)

Hazard Distances and Areas At User Specified Flux

#	Ix	Ax	Itau	Ivf	THs
0	303	2.88E+05	0.538	0.18	5
1	174	9.49E+04	0.576	0.336	10
2	143	6.44E+04	0.589	0.411	12.5
3	0	0	0	0	0
4	0	0	0	0	0
5	0	0	0	0	0
6	0	0	0	0	0
7	0	0	0	0	0
8	0	0	0	0	0
9	0	0	0	0	0

Ix: Calculated Distance At User Specified Thermal Flux, (m)
Ax: Calculated Hazard Area At User Specified Thermal Flux, (m)
Itau: Atmospheric Transmissivity
Ivf: Maximum View Factor
THs: User Specified Thermal Criterion, (kW/m2)

Hydrocarbon Pool Fires Model
==========
Last revised Dec. 1989

User specified flame temperature is used to estimate emissive power

User Inputs:

Ambient temperature, (K)	305
Relative humidity, (Percent)	50
Wind speed, (m/s)	10
Discharge temperature, (K)	350
Discharge time, (s)	600
Total volume discharged, (m3)	1.18E+04
Dike radius, (m)	1E+06
Flame temperature, (K)	977
Average emissive power, (kW/m2)	51.6
Burning rate, (m/s)	0.000229

Visual range (Very Clear) 20000 m
Spread on land

Model Outputs:

Liquid density at normal boiling point, (kg/m3)	615
Mass burning rate, (kg/m2/s)	0.141
Final pool radius, (m)	184
Depletion time, (s)	725
Flame height, (m)	398
Flame tilt from vertical, (degrees)	0
Flame drag, (m)	218

Observer Distance 100 Is Within Flame. Value is in error

Fenceline Incident Flux Estimates

#	Xs	Ys	Itau	Ivf	Iflux
0	100	0	0.614	0.659	20.9
1	200	0	0.566	0.32	9.36
2	300	0	0.539	0.198	5.5
3	400	0	0.52	0.134	3.58
4	500	0	0.506	0.0949	2.48
5	600	0	0.495	0.0702	1.79
6	700	0	0.486	0.0536	1.34
7	800	0	0.478	0.042	1.04
8	900	0	0.47	0.0337	0.819
9	1000	0	0.464	0.0276	0.662

Xs: User Specified Fenceline Distance, (m)
Ys: User Specified Crosswind Distance, (m)
Itau: Atmospheric Transmissivity
Ivf: Maximum View Factor
Iflux: Incident Flux at Fenceline Distance, (kW/m2)

Hazard Distances and Areas At User Specified Flux

#	Ix	Ax	Itau	Ivf	THs
0	321	3.23E+05	0.534	0.181	5
1	189	1.12E+05	0.57	0.34	10
2	157	7.76E+04	0.583	0.415	12.5
3	0	0	0	0	0
4	0	0	0	0	0
5	0	0	0	0	0
6	0	0	0	0	0
7	0	0	0	0	0
8	0	0	0	0	0
9	0	0	0	0	0

Ix: Calculated Distance At User Specified Thermal Flux, (m)
Ax: Calculated Hazard Area At User Specified Thermal Flux, (m)
Itau: Atmospheric Transmissivity
Ivf: Maximum View Factor
THs: User Specified Thermal Criterion, (kW/m2)

Hydrocarbon Pool Fires Model
==========
Last revised Dec. 1989

User specified flame temperature is used to estimate emissive power

User Inputs:

Ambient temperature, (K)	305
Relative humidity, (Percent)	50
Wind speed, (m/s)	20
Discharge temperature, (K)	350
Discharge time, (s)	600
Total volume discharged, (m3)	1.18E+04
Dike radius, (m)	1E+06
Flame temperature, (K)	977
Average emissive power, (kW/m2)	51.6
Burning rate, (m/s)	0.000229

Visual range (Very Clear) 20000 m
Spread on land

Model Outputs:

Liquid density at normal boiling point, (kg/m3)	615
Mass burning rate, (kg/m2/s)	0.141
Final pool radius, (m)	184
Depletion time, (s)	725
Flame height, (m)	344
Flame tilt from vertical, (degrees)	40.5
Flame drag, (m)	240

Observer Distance 100 Is Within Flame. Value is in error

Fenceline Incident Flux Estimates

#	Xs	Ys	Itau	Ivf	Iflux
0	100	0	0.614	0.932	29.6
1	200	0	0.566	0.636	18.6
2	300	0	0.539	0.428	11.9
3	400	0	0.52	0.279	7.47
4	500	0	0.506	0.177	4.62
5	600	0	0.495	0.114	2.93
6	700	0	0.486	0.0777	1.95
7	800	0	0.478	0.0554	1.37
8	900	0	0.47	0.0412	1
9	1000	0	0.464	0.0317	0.76

Xs: User Specified Fenceline Distance, (m)
Ys: User Specified Crosswind Distance, (m)
Itau: Atmospheric Transmissivity
Ivf: Maximum View Factor
Iflux: Incident Flux at Fenceline Distance, (kW/m2)

Hazard Distances and Areas At User Specified Flux

#	Ix	Ax	Itau	Ivf	THs
0	483	7.33E+05	0.508	0.191	5
1	338	3.59E+05	0.531	0.365	10
2	289	2.62E+05	0.541	0.447	12.5
3	0	0	0	0	0
4	0	0	0	0	0
5	0	0	0	0	0
6	0	0	0	0	0
7	0	0	0	0	0
8	0	0	0	0	0
9	0	0	0	0	0

Ix: Calculated Distance At User Specified Thermal Flux, (m)
Ax: Calculated Hazard Area At User Specified Thermal Flux, (m)
Itau: Atmospheric Transmissivity
Ivf: Maximum View Factor
THs: User Specified Thermal Criterion, (kW/m2)

CPU Time = 248 Seconds

Fireball Model
==========
Last revised Dec. 89

User Inputs:

Ambient temperature, (K)	305
Relative humidity, (Percent)	50
Fireball mass, (kg)	2.82E+04
Release temperature, (K)	350
Observer height, (m)	1
Visual range, (m) ..... (Very Clear)	2E+04

Model Outputs:

Initial fireball volume, (m3)	8104
Initial fireball density, (kg/m3)	3.49
Initial fireball diameter, (m)	24.9
Fraction of combustion energy radiated	0.465
Heat of combustion, (kJ/kmol)	-4.46E+09
Maximum fireball diameter, (m)	155
Maximum fireball height, (m)	255
Fireball duration, (s)	12.5

Distances reported are measured from center of fireball

Calculated Incident Flux

#	Xs	Ys	Zs	TAU	THc
0	100	0	1.5	0.544	757
1	200	0	1.5	0.533	360
2	300	0	1.5	0.52	197
3	400	0	1.5	0.509	121
4	500	0	1.5	0.499	80
5	600	0	1.5	0.49	56.3
6	700	0	1.5	0.482	41.5
7	800	0	1.5	0.474	31.8
8	900	0	1.5	0.468	25
9	1000	0	1.5	0.462	20.1

Xs: User specified fenceline distance, (m)
Ys: User specified crosswind distance, (m)
Zs: User specified elevation, (m)
TAU: Atmospheric transmissivity
THc: Calculated radiant heat at user specified fenceline, (kJ/m2)

Calculated Distance and Area

#	Xc	Ac	TAU	THs
0	713	1.59E+06	0.481	40
1	500	7.84E+05	0.499	80
2	443	6.16E+05	0.504	100
3	353	3.91E+05	0.514	150
4	340	3.62E+05	0.515	160
5	258	2.08E+05	0.525	250

Xc: Calculated distance at user specified radiant heat, (m)
Ac: Calculated hazard area at user specified radiant heat, (m^2)
TAU: Atmospheric transmissivity
THs: Radiant heat (kJ/m2)

CPU Time = 3889 Seconds

Hydrocarbon Pool Fires Model
==========
Last revised Dec. 1989

User specified flame temperature is used to estimate emissive power

User Inputs:

Ambient temperature, (K)	305
Relative humidity, (Percent)	50
Wind speed, (m/s)	1
Discharge temperature, (K)	350
Discharge time, (s)	600
Total volume discharged, (m3)	3610
Dike radius, (m)	1E+06
Flame temperature, (K)	977
Average emissive power, (kW/m2)	51.6
Burning rate, (m/s)	0.000229

Visual range (Very Clear) 20000 m
Spread on land

Model Outputs:

Liquid density at normal boiling point, (kg/m3)	615
Mass burning rate, (kg/m2/s)	0.141
Final pool radius, (m)	101
Depletion time, (s)	680
Flame height, (m)	417
Flame tilt from vertical, (degrees)	0
Flame drag, (m)	90.9

Fenceline Incident Flux Estimates

#	Xs	Ys	Itau	Ivf	Iflux
0	100	0	0.614	0.266	8.45
1	200	0	0.566	0.128	3.74
2	300	0	0.539	0.0785	2.18
3	400	0	0.52	0.053	1.42
4	500	0	0.506	0.0379	0.99
5	600	0	0.495	0.0282	0.721
6	700	0	0.486	0.0217	0.544
7	800	0	0.478	0.0171	0.423
8	900	0	0.47	0.0139	0.336
9	1000	0	0.464	0.0114	0.273

Xs: User Specified Fenceline Distance, (m)
Ys: User Specified Crosswind Distance, (m)
Itau: Atmospheric Transmissivity
Ivf: Maximum View Factor
Iflux: Incident Flux at Fenceline Distance, (kW/m2)

Hazard Distances and Areas At User Specified Flux

#	Ix	Ax	Itau	Ivf	THs
0	158	7.8E+04	0.583	0.166	5
1	86	2.32E+04	0.625	0.31	10
2	70.3	1.55E+04	0.641	0.378	12.5
3	0	0	0	0	0
4	0	0	0	0	0
5	0	0	0	0	0
6	0	0	0	0	0
7	0	0	0	0	0
8	0	0	0	0	0
9	0	0	0	0	0

Ix: Calculated Distance At User Specified Thermal Flux, (m)
Ax: Calculated Hazard Area At User Specified Thermal Flux, (m)
Itau: Atmospheric Transmissivity
Ivf: Maximum View Factor
THs: User Specified Thermal Criterion, (kW/m2)

Hydrocarbon Pool Fires Model
==========
Last revised Dec. 1989

User specified flame temperature is used to estimate emissive power

User Inputs:

Ambient temperature, (K)	305
Relative humidity, (Percent)	50
Wind speed, (m/s)	2
Discharge temperature, (K)	350
Discharge time, (s)	600
Total volume discharged, (m3)	3610
Dike radius, (m)	1E+06
Flame temperature, (K)	977
Average emissive power, (kW/m2)	51.6
Burning rate, (m/s)	0.000229

Visual range (Very Clear) 20000 m
Spread on land

Model Outputs:

Liquid density at normal boiling point, (kg/m3)	615
Mass burning rate, (kg/m2/s)	0.141
Final pool radius, (m)	101
Depletion time, (s)	680
Flame height, (m)	360
Flame tilt from vertical, (degrees)	0
Flame drag, (m)	100

Fenceline Incident Flux Estimates

#	Xs	Ys	Itau	Ivf	Iflux
0	100	0	0.614	0.294	9.31
1	200	0	0.566	0.139	4.06
2	300	0	0.539	0.0833	2.32
3	400	0	0.52	0.055	1.48
4	500	0	0.506	0.0386	1.01
5	600	0	0.495	0.0284	0.725
6	700	0	0.486	0.0216	0.541
7	800	0	0.478	0.0169	0.417
8	900	0	0.47	0.0136	0.33
9	1000	0	0.464	0.0111	0.266

Xs: User Specified Fenceline Distance, (m)
Ys: User Specified Crosswind Distance, (m)
Itau: Atmospheric Transmissivity
Ivf: Maximum View Factor
Iflux: Incident Flux at Fenceline Distance, (kW/m2)

Hazard Distances and Areas At User Specified Flux

#	Ix	Ax	Itau	Ivf	THs
0	170	9.03E+04	0.578	0.168	5
1	93.9	2.76E+04	0.619	0.313	10
2	76.8	1.85E+04	0.634	0.382	12.5
3	0	0	0	0	0
4	0	0	0	0	0
5	0	0	0	0	0
6	0	0	0	0	0
7	0	0	0	0	0
8	0	0	0	0	0
9	0	0	0	0	0

Ix: Calculated Distance At User Specified Thermal Flux, (m)
Ax: Calculated Hazard Area At User Specified Thermal Flux, (m)
Itau: Atmospheric Transmissivity
Ivf: Maximum View Factor
THs: User Specified Thermal Criterion, (kW/m2)

Hydrocarbon Pool Fires Model
==========
Last revised Dec. 1989

User specified flame temperature is used to estimate emissive power

User Inputs:

Ambient temperature, (K)	305
Relative humidity, (Percent)	50
Wind speed, (m/s)	3
Discharge temperature, (K)	350
Discharge time, (s)	600
Total volume discharged, (m3)	3610
Dike radius, (m)	1E+06
Flame temperature, (K)	977
Average emissive power, (kW/m2)	51.6
Burning rate, (m/s)	0.000229

Visual range (Very Clear) 20000 m
Spread on land

Model Outputs:

Liquid density at normal boiling point, (kg/m3)	615
Mass burning rate, (kg/m2/s)	0.141
Final pool radius, (m)	101
Depletion time, (s)	680
Flame height, (m)	331
Flame tilt from vertical, (degrees)	0
Flame drag, (m)	106

Fenceline Incident Flux Estimates

#	Xs	Ys	Itau	Ivf	Iflux
0	100	0	0.614	0.311	9.86
1	200	0	0.566	0.145	4.25
2	300	0	0.539	0.086	2.39
3	400	0	0.52	0.056	1.5
4	500	0	0.506	0.0389	1.02
5	600	0	0.495	0.0283	0.724
6	700	0	0.486	0.0214	0.538
7	800	0	0.478	0.0167	0.413
8	900	0	0.47	0.0134	0.325
9	1000	0	0.464	0.0109	0.262

Xs: User Specified Fenceline Distance, (m)
Ys: User Specified Crosswind Distance, (m)
Itau: Atmospheric Transmissivity
Ivf: Maximum View Factor
Iflux: Incident Flux at Fenceline Distance, (kW/m2)

Hazard Distances and Areas At User Specified Flux

#	Ix	Ax	Itau	Ivf	THs
0	177	9.79E+04	0.575	0.168	5
1	98.8	3.06E+04	0.615	0.315	10
2	81	2.06E+04	0.63	0.384	12.5
3	0	0	0	0	0
4	0	0	0	0	0
5	0	0	0	0	0
6	0	0	0	0	0
7	0	0	0	0	0
8	0	0	0	0	0
9	0	0	0	0	0

Ix: Calculated Distance At User Specified Thermal Flux, (m)
Ax: Calculated Hazard Area At User Specified Thermal Flux, (m)
Itau: Atmospheric Transmissivity
Ivf: Maximum View Factor
THs: User Specified Thermal Criterion, (kW/m2)

Hydrocarbon Pool Fires Model
==========
Last revised Dec. 1989

User specified flame temperature is used to estimate emissive power

User Inputs:

Ambient temperature, (K)	305
Relative humidity, (Percent)	50
Wind speed, (m/s)	4
Discharge temperature, (K)	350
Discharge time, (s)	600
Total volume discharged, (m3)	3610
Dike radius, (m)	1E+06
Flame temperature, (K)	977
Average emissive power, (kW/m2)	51.6
Burning rate, (m/s)	0.000229

Visual range (Very Clear) 20000 m
Spread on land

Model Outputs:

Liquid density at normal boiling point, (kg/m3)	615
Mass burning rate, (kg/m2/s)	0.141
Final pool radius, (m)	101
Depletion time, (s)	680
Flame height, (m)	311
Flame tilt from vertical, (degrees)	0
Flame drag, (m)	110

Fenceline Incident Flux Estimates

#	Xs	Ys	Itau	Ivf	Iflux
0	100	0	0.614	0.324	10.3
1	200	0	0.566	0.15	4.4
2	300	0	0.539	0.0879	2.44
3	400	0	0.52	0.0567	1.52
4	500	0	0.506	0.039	1.02
5	600	0	0.495	0.0283	0.723
6	700	0	0.486	0.0213	0.535
7	800	0	0.478	0.0166	0.409
8	900	0	0.47	0.0132	0.322
9	1000	0	0.464	0.0108	0.259

Xs: User Specified Fenceline Distance, (m)
Ys: User Specified Crosswind Distance, (m)
Itau: Atmospheric Transmissivity
Ivf: Maximum View Factor
Iflux: Incident Flux at Fenceline Distance, (kW/m2)

Hazard Distances and Areas At User Specified Flux

#	Ix	Ax	Itau	Ivf	THs
0	181	1.03E+05	0.573	0.169	5
1	102	3.29E+04	0.612	0.316	10
2	84.1	2.22E+04	0.627	0.386	12.5
3	0	0	0	0	0
4	0	0	0	0	0
5	0	0	0	0	0
6	0	0	0	0	0
7	0	0	0	0	0
8	0	0	0	0	0
9	0	0	0	0	0

Ix: Calculated Distance At User Specified Thermal Flux, (m)
Ax: Calculated Hazard Area At User Specified Thermal Flux, (m)
Itau: Atmospheric Transmissivity
Ivf: Maximum View Factor
THs: User Specified Thermal Criterion, (kW/m2)

Hydrocarbon Pool Fires Model
==========
Last revised Dec. 1989

User specified flame temperature is used to estimate emissive power

User Inputs:

Ambient temperature, (K)	305
Relative humidity, (Percent)	50
Wind speed, (m/s)	5
Discharge temperature, (K)	350
Discharge time, (s)	600
Total volume discharged, (m3)	3610
Dike radius, (m)	1E+06
Flame temperature, (K)	977
Average emissive power, (kW/m2)	51.6
Burning rate, (m/s)	0.000229

Visual range (Very Clear) 20000 m
Spread on land

Model Outputs:

Liquid density at normal boiling point, (kg/m3)	615
Mass burning rate, (kg/m2/s)	0.141
Final pool radius, (m)	101
Depletion time, (s)	680
Flame height, (m)	297
Flame tilt from vertical, (degrees)	0
Flame drag, (m)	113

Fenceline Incident Flux Estimates

#	Xs	Ys	Itau	Ivf	Iflux
0	100	0	0.614	0.335	10.6
1	200	0	0.566	0.154	4.51
2	300	0	0.539	0.0893	2.48
3	400	0	0.52	0.0571	1.53
4	500	0	0.506	0.0391	1.02
5	600	0	0.495	0.0282	0.721
6	700	0	0.486	0.0212	0.532
7	800	0	0.478	0.0165	0.406
8	900	0	0.47	0.0131	0.319
9	1000	0	0.464	0.0107	0.256

Xs: User Specified Fenceline Distance, (m)
Ys: User Specified Crosswind Distance, (m)
Itau: Atmospheric Transmissivity
Ivf: Maximum View Factor
Iflux: Incident Flux at Fenceline Distance, (kW/m2)

Hazard Distances and Areas At User Specified Flux

#	Ix	Ax	Itau	Ivf	THs
0	185	1.07E+05	0.571	0.169	5
1	105	3.48E+04	0.611	0.317	10
2	86.6	2.35E+04	0.625	0.388	12.5
3	0	0	0	0	0
4	0	0	0	0	0
5	0	0	0	0	0
6	0	0	0	0	0
7	0	0	0	0	0
8	0	0	0	0	0
9	0	0	0	0	0

Ix: Calculated Distance At User Specified Thermal Flux, (m)
Ax: Calculated Hazard Area At User Specified Thermal Flux, (m)
Itau: Atmospheric Transmissivity
Ivf: Maximum View Factor
THs: User Specified Thermal Criterion, (kW/m2)

Hydrocarbon Pool Fires Model
==========
Last revised Dec. 1989

User specified flame temperature is used to estimate emissive power

User Inputs:

Ambient temperature, (K)	305
Relative humidity, (Percent)	50
Wind speed, (m/s)	10
Discharge temperature, (K)	350
Discharge time, (s)	600
Total volume discharged, (m3)	3610
Dike radius, (m)	1E+06
Flame temperature, (K)	977
Average emissive power, (kW/m2)	51.6
Burning rate, (m/s)	0.000229

Visual range (Very Clear) 20000 m
Spread on land

Model Outputs:

Liquid density at normal boiling point, (kg/m3)	615
Mass burning rate, (kg/m2/s)	0.141
Final pool radius, (m)	101
Depletion time, (s)	680
Flame height, (m)	257
Flame tilt from vertical, (degrees)	12.9
Flame drag, (m)	125

Fenceline Incident Flux Estimates

#	Xs	Ys	Itau	Ivf	Iflux
0	100	0	0.614	0.444	14.1
1	200	0	0.566	0.206	6.01
2	300	0	0.539	0.114	3.17
3	400	0	0.52	0.069	1.85
4	500	0	0.506	0.0452	1.18
5	600	0	0.495	0.0315	0.805
6	700	0	0.486	0.023	0.577
7	800	0	0.478	0.0175	0.432
8	900	0	0.47	0.0137	0.333
9	1000	0	0.464	0.011	0.265

Xs: User Specified Fenceline Distance, (m)
Ys: User Specified Crosswind Distance, (m)
Itau: Atmospheric Transmissivity
Ivf: Maximum View Factor
Iflux: Incident Flux at Fenceline Distance, (kW/m2)

Hazard Distances and Areas At User Specified Flux

#	Ix	Ax	Itau	Ivf	THs
0	227	1.61E+05	0.558	0.174	5
1	135	5.73E+04	0.593	0.326	10
2	111	3.9E+04	0.607	0.399	12.5
3	0	0	0	0	0
4	0	0	0	0	0
5	0	0	0	0	0
6	0	0	0	0	0
7	0	0	0	0	0
8	0	0	0	0	0
9	0	0	0	0	0

Ix: Calculated Distance At User Specified Thermal Flux, (m)
Ax: Calculated Hazard Area At User Specified Thermal Flux, (m)
Itau: Atmospheric Transmissivity
Ivf: Maximum View Factor
THs: User Specified Thermal Criterion, (kW/m2)

Hydrocarbon Pool Fires Model
==========
Last revised Dec. 1989

User specified flame temperature is used to estimate emissive power

User Inputs:

Ambient temperature, (K)	305
Relative humidity, (Percent)	50
Wind speed, (m/s)	20
Discharge temperature, (K)	350
Discharge time, (s)	600
Total volume discharged, (m3)	3610
Dike radius, (m)	1E+06
Flame temperature, (K)	977
Average emissive power, (kW/m2)	51.6
Burning rate, (m/s)	0.000229

Visual range (Very Clear) 20000 m
Spread on land

Model Outputs:

Liquid density at normal boiling point, (kg/m3)	615
Mass burning rate, (kg/m2/s)	0.141
Final pool radius, (m)	101
Depletion time, (s)	680
Flame height, (m)	222
Flame tilt from vertical, (degrees)	46.4
Flame drag, (m)	137

Fenceline Incident Flux Estimates

#	Xs	Ys	Itau	Ivf	Iflux
0	100	0	0.614	0.747	23.7
1	200	0	0.566	0.41	12
2	300	0	0.539	0.199	5.52
3	400	0	0.52	0.0953	2.56
4	500	0	0.506	0.0523	1.37
5	600	0	0.495	0.0324	0.828
6	700	0	0.486	0.0219	0.549
7	800	0	0.478	0.0157	0.388
8	900	0	0.47	0.0118	0.287
9	1000	0	0.464	0.00923	0.221

Xs: User Specified Fenceline Distance, (m)
Ys: User Specified Crosswind Distance, (m)
Itau: Atmospheric Transmissivity
Ivf: Maximum View Factor
Iflux: Incident Flux at Fenceline Distance, (kW/m2)

Hazard Distances and Areas At User Specified Flux

#	Ix	Ax	Itau	Ivf	THs
0	312	3.06E+05	0.536	0.181	5
1	225	1.58E+05	0.558	0.347	10
2	194	1.18E+05	0.568	0.426	12.5
3	0	0	0	0	0
4	0	0	0	0	0
5	0	0	0	0	0
6	0	0	0	0	0
7	0	0	0	0	0
8	0	0	0	0	0
9	0	0	0	0	0

Ix: Calculated Distance At User Specified Thermal Flux, (m)
Ax: Calculated Hazard Area At User Specified Thermal Flux, (m)
Itau: Atmospheric Transmissivity
Ivf: Maximum View Factor
THs: User Specified Thermal Criterion, (kW/m2)

CPU Time = 368 Seconds