ANNEXE 5

Résultats du modèle CORMIX

CORMIX1 PREDICTION FILE:
1,1111E+76
CORNELL MIXING ZONE EXPERT SYSTEM
Subsystem CORMIX1: Subsystem version:
Submerged Single Port Discharges CORMIX_v.3.20_____September_1996

CASE DESCRIPTION
Site name/label: TransCanada^Becancour
Design case: TransCanada^Becancour
FILE NAME: cormix\sim\cas-ete.cx1
Time of Fortran run: 07/09/03--14:25:34

ENVIRONMENT PARAMETERS (metric units)
Bounded section
BS = 2000.00 AS = 14000.00 QA = 8400.00 ICHREG= 2
HA = 7.00 HD = 9.00
UA = .600 F = .037 USTAR = .4077E-01
UW = 2.000 UWSTAR= .2198E-02
Uniform density environment
STRCND= U RHOAM = 998.2051

DISCHARGE PARAMETERS (metric units)
BANK = LEFT DISTB = 800.00
D0 = .750 A0 = .442 H0 = .50
THETA = .00 SIGMA = 270.00
U0 = .801 Q0 = .354 = .3540E+00
RHO0 = 990.2090 DRHO0 = .7996E+01 GP0 = .7856E-01
C0 = .1000E+01 CUNITS= fraction
IPOLL = 1 KS = .0000E+00 KD = .0000E+00

FLUX VARIABLES (metric units)
Q0 = .3540E+00 M0 = .2837E+00 J0 = .2781E-01 SIGNJ0= 1.0
Associated length scales (meters)
LQ = .66 LM = 2.33 Lm = .89 Lb = .13
Lmp = 99999.00 Lbp = 99999.00

NON-DIMENSIONAL PARAMETERS
FR0 = 3.30 R = 1.33

FLOW CLASSIFICATION
1,1111E+41
1 Flow class (CORMIX1) = H1A1 1
1 Applicable layer depth HS = 9.00 1
1,1111E+41

MIXING ZONE / TOXIC DILUTION / REGION OF INTEREST PARAMETERS
C0 = .1000E+01 CUNITS= fraction
NTOX = 0
NSTD = 0
REGMZ = 0
XINT = 20000.00 XMAX = 20000.00

X-Y-Z COORDINATE SYSTEM:
ORIGIN is located at the bottom and below the center of the port:
800.00 m from the LEFT bank/shore.
X-axis points downstream, Y-axis points to left, Z-axis points upward.
NSTEP = 50 display intervals per module

BEGIN MOD101: DISCHARGE MODULE

WAKE ATTACHMENT immediately following the discharge.

X	Y	Z	S	C	B
.00	.00	.00	1.0	.100E+01	1.09

END OF MOD101: DISCHARGE MODULE

BEGIN MOD151: WAKE RECIRCULATION

Control volume inflow:

X	Y	Z	S	C	B
.00	.00	.00	1.0	.100E+01	1.09

Profile definitions:
BV = top-hat thickness, measured vertically
BH = top-hat half-width, measured horizontally in Y-direction
ZU = upper plume boundary (Z-coordinate)
ZL = lower plume boundary (Z-coordinate)
S = hydrodynamic average (bulk) dilution
C = average (bulk) concentration (includes reaction effects, if any)

X	Y	Z	S	C	BV	BH	ZU	ZL	
.00	-.89	.00	1.0	.100E+01	1.09	1.09	1.09	.00	
.33	-.89	.00	1.1	.939E+00	1.06	1.06	1.06	.00	
.66	-.89	.00	1.2	.804E+00	1.05	1.05	1.05	.00	
1.00	-.89	.00	1.5	.668E+00	1.04	1.04	1.04	.00	
1.33	-.89	.00	1.8	.562E+00	1.03	1.03	1.03	.00	
1.66	-.89	.00	2.0	.490E+00	1.02	1.02	1.02	.00	
1.99	-.89	.00	2.3	.443E+00	1.02	1.02	1.02	.00	
2.33	-.89	.00	2.4	.414E+00	1.01	1.01	1.01	.00	
2.66	-.89	.00	2.5	.397E+00	1.01	1.01	1.01	.00	
2.99	-.89	.00	2.6	.387E+00	1.00	1.00	1.00	.00	
3.32	-.89	.00	2.6	.378E+00	1.00	1.00	1.00	.00	

Cumulative travel time = 6. sec

END OF MOD151: WAKE RECIRCULATION

BEGIN MOD152: LIFT OFF/FALL DOWN

Profile definitions:

B = Gaussian 1/e (37%) half-width, normal to trajectory
S = hydrodynamic centerline dilution
C = centerline concentration (includes reaction effects, if any)

Inflow (attached) and outflow (free) conditions:

X	Y	Z	S	C	B
3.32	-.89	.00	2.6	.378E+00	1.09
5.50	-.89	.00	2.6	.378E+00	.80

Cumulative travel time = 9. sec

END OF MOD152: LIFT OFF/FALL DOWN

BEGIN CORJET (MOD110): JET/PLUME NEAR-FIELD MIXING REGION

Plume-like motion after lift off/fall down.

The WIDTH PREDICTION B in the first entry below may exhibit some mismatch
(up to a factor of 1.5) relative to the last entry of the previous module.
This is unavoidable due to differences in the width definitions.
The actual physical transition will be smoothed out.

Profile definitions:
B = Gaussian 1/e (37%) half-width, normal to trajectory
S = hydrodynamic centerline dilution
C = centerline concentration (includes reaction effects, if any)

X	Y	Z	S	C	B
5.50	-.89	.00	2.6	.378E+00	.45
6.45	-.89	.02	2.6	.378E+00	.47
7.48	-.89	.10	2.6	.378E+00	.50
8.51	-.89	.21	2.6	.378E+00	.53
9.46	-.89	.34	2.9	.347E+00	.57
10.48	-.89	.49	3.3	.301E+00	.62
11.50	-.89	.65	3.8	.263E+00	.67
12.44	-.89	.81	4.3	.233E+00	.71
13.46	-.89	.98	4.9	.206E+00	.76
14.48	-.89	1.15	5.4	.184E+00	.81
15.50	-.89	1.32	6.1	.165E+00	.86
16.44	-.89	1.48	6.7	.150E+00	.90
17.46	-.89	1.65	7.3	.137E+00	.94
18.48	-.89	1.81	8.0	.125E+00	.99
19.43	-.89	1.96	8.6	.116E+00	1.03
20.45	-.89	2.12	9.4	.107E+00	1.07
21.47	-.89	2.28	10.1	.990E-01	1.12
22.41	-.89	2.43	10.8	.926E-01	1.16
23.44	-.89	2.58	11.6	.865E-01	1.20
24.46	-.89	2.74	12.3	.810E-01	1.24
25.48	-.89	2.89	13.1	.761E-01	1.28
26.43	-.89	3.03	13.9	.720E-01	1.32
27.45	-.89	3.17	14.7	.680E-01	1.36
28.47	-.89	3.32	15.5	.643E-01	1.40

29.42	-.89	3.45	16.3	.613E-01	1.43
30.44	-.89	3.60	17.2	.582E-01	1.47
31.47	-.89	3.74	18.0	.554E-01	1.51
32.41	-.89	3.87	18.9	.530E-01	1.54
33.44	-.89	4.00	19.7	.506E-01	1.58
34.46	-.89	4.14	20.6	.484E-01	1.61
35.49	-.89	4.28	21.6	.464E-01	1.65
36.43	-.89	4.40	22.4	.446E-01	1.68
37.46	-.89	4.53	23.3	.429E-01	1.72
38.49	-.89	4.67	24.3	.412E-01	1.75
39.43	-.89	4.79	25.1	.398E-01	1.78
40.46	-.89	4.92	26.1	.383E-01	1.82
41.48	-.89	5.04	27.1	.370E-01	1.85
42.43	-.89	5.16	28.0	.358E-01	1.88
43.46	-.89	5.29	28.9	.346E-01	1.92
44.48	-.89	5.41	29.9	.334E-01	1.95
45.51	-.89	5.54	30.9	.323E-01	1.98
46.46	-.89	5.65	31.9	.314E-01	2.01
47.49	-.89	5.78	32.9	.304E-01	2.05
48.51	-.89	5.90	33.9	.295E-01	2.08
49.46	-.89	6.01	34.8	.287E-01	2.11
50.49	-.89	6.13	35.9	.279E-01	2.14
51.52	-.89	6.25	36.9	.271E-01	2.17
52.46	-.89	6.36	37.9	.264E-01	2.20
53.49	-.89	6.48	39.0	.257E-01	2.23
54.52	-.89	6.59	40.0	.250E-01	2.26
55.55	-.89	6.71	41.0	.244E-01	2.29

Cumulative travel time = 83. sec

END OF CORJET (MOD110): JET/PLUME NEAR-FIELD MIXING REGION

BEGIN MOD131: LAYER BOUNDARY/TERMINAL LAYER APPROACH

Control volume inflow:

X	Y	Z	S	C	B
55.55	-.89	6.71	41.0	.244E-01	2.29

Profile definitions:

BV = top-hat thickness, measured vertically
BH = top-hat half-width, measured horizontally in Y-direction
ZU = upper plume boundary (Z-coordinate)
ZL = lower plume boundary (Z-coordinate)
S = hydrodynamic average (bulk) dilution
C = average (bulk) concentration (includes reaction effects, if any)

X	Y	Z	S	C	BV	BH	ZU	ZL
53.26	-.89	9.00	41.0	.244E-01	.00	.00	9.00	9.00
53.94	-.89	9.00	41.0	.244E-01	2.85	1.43	11.85	9.00
54.63	-.89	9.00	41.0	.244E-01	3.38	2.03	12.38	9.00
55.32	-.89	9.00	41.0	.244E-01	3.72	2.48	12.72	9.00
56.00	-.89	9.00	42.1	.237E-01	3.97	2.87	12.97	9.00

56.69	-.89	9.00	47.4	.211E-01	4.16	3.21	13.16	9.00
57.38	-.89	9.00	54.6	.183E-01	4.30	3.51	13.30	9.00
58.06	-.89	9.00	61.2	.163E-01	4.41	3.79	13.41	9.00
58.75	-.89	9.00	65.7	.152E-01	4.48	4.06	13.48	9.00
59.44	-.89	9.00	68.1	.147E-01	4.52	4.30	13.52	9.00
60.12	-.89	9.00	69.7	.143E-01	4.54	4.54	13.54	9.00

Cumulative travel time = 90. sec

END OF MOD131: LAYER BOUNDARY/TERMINAL LAYER APPROACH

** End of NEAR-FIELD REGION (NFR) **

BEGIN MOD141: BUOYANT AMBIENT SPREADING

Profile definitions:
BV = top-hat thickness, measured vertically
BH = top-hat half-width, measured horizontally in Y-direction
ZU = upper plume boundary (Z-coordinate)
ZL = lower plume boundary (Z-coordinate)
S = hydrodynamic average (bulk) dilution
C = average (bulk) concentration (includes reaction effects, if any)

Plume Stage 1 (not bank attached):

X	Y	Z	S	C	BV	BH	ZU	ZL
60.12	-.89	9.00	69.7	.143E-01	4.54	4.54	13.54	9.00
63.32	-.89	9.00	71.0	.141E-01	4.36	4.80	13.36	9.00
66.52	-.89	9.00	72.2	.138E-01	4.21	5.06	13.21	9.00
69.72	-.89	9.00	73.4	.136E-01	4.08	5.31	13.08	9.00
72.92	-.89	9.00	74.6	.134E-01	3.96	5.56	12.96	9.00
76.12	-.89	9.00	75.8	.132E-01	3.86	5.80	12.86	9.00
79.31	-.89	9.00	77.0	.130E-01	3.77	6.03	12.77	9.00
82.51	-.89	9.00	78.2	.128E-01	3.68	6.27	12.68	9.00
85.71	-.89	9.00	79.4	.126E-01	3.61	6.49	12.61	9.00
88.91	-.89	9.00	80.6	.124E-01	3.54	6.72	12.54	9.00
92.11	-.89	9.00	81.8	.122E-01	3.48	6.93	12.48	9.00
95.31	-.89	9.00	83.1	.120E-01	3.43	7.15	12.43	9.00
98.50	-.89	9.00	84.3	.119E-01	3.38	7.36	12.38	9.00
101.70	-.89	9.00	85.6	.117E-01	3.33	7.57	12.33	9.00
104.90	-.89	9.00	86.9	.115E-01	3.29	7.78	12.29	9.00
108.10	-.89	9.00	88.2	.113E-01	3.26	7.98	12.26	9.00
111.30	-.89	9.00	89.6	.112E-01	3.23	8.19	12.23	9.00
114.50	-.89	9.00	91.0	.110E-01	3.20	8.39	12.20	9.00
117.69	-.89	9.00	92.4	.108E-01	3.17	8.58	12.17	9.00
120.89	-.89	9.00	93.8	.107E-01	3.15	8.78	12.15	9.00
124.09	-.89	9.00	95.3	.105E-01	3.13	8.97	12.13	9.00
127.29	-.89	9.00	96.8	.103E-01	3.12	9.16	12.12	9.00
130.49	-.89	9.00	98.3	.102E-01	3.10	9.35	12.10	9.00
133.69	-.89	9.00	99.9	.100E-01	3.09	9.53	12.09	9.00
136.88	-.89	9.00	101.5	.985E-02	3.08	9.72	12.08	9.00
140.08	-.89	9.00	103.1	.969E-02	3.07	9.90	12.07	9.00
143.28	-.89	9.00	104.8	.954E-02	3.07	10.08	12.07	9.00
146.48	-.89	9.00	106.6	.938E-02	3.06	10.26	12.06	9.00

149.68	-.89	9.00	108.3	.923E-02	3.06	10.44	12.06	9.00
152.88	-.89	9.00	110.1	.908E-02	3.06	10.62	12.06	9.00
156.08	-.89	9.00	112.0	.893E-02	3.06	10.79	12.06	9.00
159.27	-.89	9.00	113.9	.878E-02	3.06	10.97	12.06	9.00
162.47	-.89	9.00	115.8	.863E-02	3.07	11.14	12.07	9.00
165.67	-.89	9.00	117.8	.849E-02	3.07	11.31	12.07	9.00
168.87	-.89	9.00	119.8	.835E-02	3.08	11.48	12.08	9.00
172.07	-.89	9.00	121.9	.820E-02	3.09	11.65	12.09	9.00
175.27	-.89	9.00	124.0	.806E-02	3.10	11.82	12.10	9.00
178.46	-.89	9.00	126.2	.793E-02	3.11	11.98	12.11	9.00
181.66	-.89	9.00	128.4	.779E-02	3.12	12.15	12.12	9.00
184.86	-.89	9.00	130.6	.766E-02	3.13	12.31	12.13	9.00
188.06	-.89	9.00	132.9	.752E-02	3.14	12.47	12.14	9.00
191.26	-.89	9.00	135.3	.739E-02	3.16	12.64	12.16	9.00
194.46	-.89	9.00	137.7	.726E-02	3.17	12.80	12.17	9.00
197.65	-.89	9.00	140.1	.714E-02	3.19	12.96	12.19	9.00
200.85	-.89	9.00	142.6	.701E-02	3.21	13.11	12.21	9.00
204.05	-.89	9.00	145.2	.689E-02	3.23	13.27	12.23	9.00
207.25	-.89	9.00	147.8	.677E-02	3.25	13.43	12.25	9.00
210.45	-.89	9.00	150.4	.665E-02	3.27	13.59	12.27	9.00
213.65	-.89	9.00	153.1	.653E-02	3.29	13.74	12.29	9.00
216.84	-.89	9.00	155.9	.642E-02	3.31	13.89	12.31	9.00
220.04	-.89	9.00	158.7	.630E-02	3.33	14.05	12.33	9.00

Cumulative travel time = 357. sec

END OF MOD141: BUOYANT AMBIENT SPREADING

Bottom coordinate for FAR-FIELD is determined by average depth, ZFB = 2.00m

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BEGIN MOD161: PASSIVE AMBIENT MIXING IN UNIFORM AMBIENT

Vertical diffusivity (initial value) = .734E-01 m^2/s
Horizontal diffusivity (initial value) = .184E+00 m^2/s

Profile definitions:
BV = Gaussian s.d.*sqrt(pi/2) (46%) thickness, measured vertically
= or equal to layer depth, if fully mixed
BH = Gaussian s.d.*sqrt(pi/2) (46%) half-width,
measured horizontally in Y-direction
ZU = upper plume boundary (Z-coordinate)
ZL = lower plume boundary (Z-coordinate)
S = hydrodynamic centerline dilution
C = centerline concentration (includes reaction effects, if any)

Plume Stage 1 (not bank attached):

X	Y	Z	S	C	BV	BH	ZU	ZL
220.04	-.89	9.00	158.7	.630E-02	3.33	14.05	12.33	9.00
615.64	-.89	9.00	570.2	.175E-02	7.00	24.03	16.00	9.00
1011.24	-.89	9.00	734.3	.136E-02	7.00	30.95	16.00	9.00
1406.84	-.89	9.00	867.9	.115E-02	7.00	36.58	16.00	9.00
1802.44	-.89	9.00	983.5	.102E-02	7.00	41.45	16.00	9.00
2198.04	-.89	9.00	1086.9	.920E-03	7.00	45.80	16.00	9.00

2593.64	-.89	9.00	1181.2	.847E-03	7.00	49.78	16.00	9.00
2989.24	-.89	9.00	1268.6	.788E-03	7.00	53.46	16.00	9.00
3384.84	-.89	9.00	1350.3	.741E-03	7.00	56.91	16.00	9.00
3780.44	-.89	9.00	1427.4	.701E-03	7.00	60.15	16.00	9.00
4176.03	-.89	9.00	1500.5	.666E-03	7.00	63.24	16.00	9.00
4571.63	-.89	9.00	1570.2	.637E-03	7.00	66.17	16.00	9.00
4967.23	-.89	9.00	1636.9	.611E-03	7.00	68.99	16.00	9.00
5362.83	-.89	9.00	1701.1	.588E-03	7.00	71.69	16.00	9.00
5758.43	-.89	9.00	1762.9	.567E-03	7.00	74.29	16.00	9.00
6154.03	-.89	9.00	1822.6	.549E-03	7.00	76.81	16.00	9.00
6549.63	-.89	9.00	1880.4	.532E-03	7.00	79.24	16.00	9.00
6945.23	-.89	9.00	1936.4	.516E-03	7.00	81.61	16.00	9.00
7340.83	-.89	9.00	1990.9	.502E-03	7.00	83.90	16.00	9.00
7736.43	-.89	9.00	2044.0	.489E-03	7.00	86.14	16.00	9.00
8132.03	-.89	9.00	2095.7	.477E-03	7.00	88.32	16.00	9.00
8527.63	-.89	9.00	2146.1	.466E-03	7.00	90.44	16.00	9.00
8923.22	-.89	9.00	2195.4	.455E-03	7.00	92.52	16.00	9.00
9318.82	-.89	9.00	2243.7	.446E-03	7.00	94.55	16.00	9.00
9714.42	-.89	9.00	2290.9	.437E-03	7.00	96.54	16.00	9.00
10110.02	-.89	9.00	2337.1	.428E-03	7.00	98.49	16.00	9.00
10505.62	-.89	9.00	2382.5	.420E-03	7.00	100.40	16.00	9.00
10901.22	-.89	9.00	2427.0	.412E-03	7.00	102.28	16.00	9.00
11296.82	-.89	9.00	2470.7	.405E-03	7.00	104.12	16.00	9.00
11692.42	-.89	9.00	2513.6	.398E-03	7.00	105.93	16.00	9.00
12088.02	-.89	9.00	2555.8	.391E-03	7.00	107.71	16.00	9.00
12483.62	-.89	9.00	2597.4	.385E-03	7.00	109.46	16.00	9.00
12879.22	-.89	9.00	2638.2	.379E-03	7.00	111.18	16.00	9.00
13274.82	-.89	9.00	2678.5	.373E-03	7.00	112.88	16.00	9.00
13670.42	-.89	9.00	2718.2	.368E-03	7.00	114.55	16.00	9.00
14066.02	-.89	9.00	2757.3	.363E-03	7.00	116.20	16.00	9.00
14461.62	-.89	9.00	2795.8	.358E-03	7.00	117.82	16.00	9.00
14857.22	-.89	9.00	2833.8	.353E-03	7.00	119.43	16.00	9.00
15252.82	-.89	9.00	2871.3	.348E-03	7.00	121.01	16.00	9.00
15648.42	-.89	9.00	2908.4	.344E-03	7.00	122.57	16.00	9.00
16044.02	-.89	9.00	2944.9	.340E-03	7.00	124.11	16.00	9.00
16439.62	-.89	9.00	2981.1	.335E-03	7.00	125.63	16.00	9.00
16835.22	-.89	9.00	3016.7	.331E-03	7.00	127.13	16.00	9.00
17230.82	-.89	9.00	3052.0	.328E-03	7.00	128.62	16.00	9.00
17626.42	-.89	9.00	3086.9	.324E-03	7.00	130.09	16.00	9.00
18022.02	-.89	9.00	3121.4	.320E-03	7.00	131.54	16.00	9.00
18417.62	-.89	9.00	3155.5	.317E-03	7.00	132.98	16.00	9.00
18813.21	-.89	9.00	3189.2	.314E-03	7.00	134.40	16.00	9.00
19208.81	-.89	9.00	3222.6	.310E-03	7.00	135.81	16.00	9.00
19604.41	-.89	9.00	3255.6	.307E-03	7.00	137.20	16.00	9.00
20000.01	-.89	9.00	3288.3	.304E-03	7.00	138.58	16.00	9.00

Cumulative travel time = 33322. sec

Simulation limit based on maximum specified distance = 20000.00 m.
This is the REGION OF INTEREST limitation.

END OF MOD161: PASSIVE AMBIENT MIXING IN UNIFORM AMBIENT

CORMIX1: Submerged Single Port Discharges End of Prediction File

1,1111E+76

CORMIX1 PREDICTION FILE:
1,1111E+76
CORNELL MIXING ZONE EXPERT SYSTEM
Subsystem CORMIX1: Subsystem version:
Submerged Single Port Discharges CORMIX_v.3.20_____September_1996

CASE DESCRIPTION
Site name/label: TransCanada^Becancour
Design case: TransCanada^Becancour
FILE NAME: cormix\sim\cas-hiver.cx1
Time of Fortran run: 07/09/03--14:51:18

ENVIRONMENT PARAMETERS (metric units)
Bounded section
BS = 2000.00 AS = 14000.00 QA = 8400.00 ICHREG= 2
HA = 7.00 HD = 9.00
UA = .600 F = .037 USTAR = .4077E-01
UW = 2.000 UWSTAR= .2198E-02
Uniform density environment
STRCND= U RHOAM = 999.9667

DISCHARGE PARAMETERS (metric units)
BANK = LEFT DISTB = 800.00
D0 = .750 A0 = .442 H0 = .50
THETA = .00 SIGMA = 270.00
U0 = .679 Q0 = .300 = .3000E+00
RHO0 = 994.0295 DRHO0 = .5937E+01 GP0 = .5823E-01
C0 = .1000E+01 CUNITS= fraction
IPOLL = 1 KS = .0000E+00 KD = .0000E+00

FLUX VARIABLES (metric units)
Q0 = .3000E+00 M0 = .2037E+00 J0 = .1747E-01 SIGNJ0= 1.0
Associated length scales (meters)
LQ = .66 LM = 2.29 Lm = .75 Lb = .08
Lmp = 99999.00 Lbp = 99999.00

NON-DIMENSIONAL PARAMETERS
FR0 = 3.24 R = 1.13

FLOW CLASSIFICATION
1,1111E+41
1 Flow class (CORMIX1) = H1A1 1
1 Applicable layer depth HS = 9.00 1
1,1111E+41

MIXING ZONE / TOXIC DILUTION / REGION OF INTEREST PARAMETERS
C0 = .1000E+01 CUNITS= fraction
NTOX = 0
NSTD = 0
REGMZ = 0
XINT = 20000.00 XMAX = 20000.00

X-Y-Z COORDINATE SYSTEM:
ORIGIN is located at the bottom and below the center of the port:
800.00 m from the LEFT bank/shore.
X-axis points downstream, Y-axis points to left, Z-axis points upward.
NSTEP = 50 display intervals per module

BEGIN MOD101: DISCHARGE MODULE

WAKE ATTACHMENT immediately following the discharge.

X	Y	Z	S	C	B
.00	.00	.00	1.0	.100E+01	1.00

END OF MOD101: DISCHARGE MODULE

BEGIN MOD151: WAKE RECIRCULATION

Control volume inflow:

X	Y	Z	S	C	B
.00	.00	.00	1.0	.100E+01	1.00

Profile definitions:
BV = top-hat thickness, measured vertically
BH = top-hat half-width, measured horizontally in Y-direction
ZU = upper plume boundary (Z-coordinate)
ZL = lower plume boundary (Z-coordinate)
S = hydrodynamic average (bulk) dilution
C = average (bulk) concentration (includes reaction effects, if any)

X	Y	Z	S	C	BV	BH	ZU	ZL
.00	-.75	.00	1.0	.100E+01	1.00	1.00	1.00	.00
.33	-.75	.00	1.1	.923E+00	1.00	1.00	1.00	.00
.66	-.75	.00	1.3	.761E+00	1.00	1.00	1.00	.00
1.00	-.75	.00	1.6	.609E+00	1.00	1.00	1.00	.00
1.33	-.75	.00	2.0	.499E+00	1.00	1.00	1.00	.00
1.66	-.75	.00	2.3	.427E+00	1.00	1.00	1.00	.00
1.99	-.75	.00	2.6	.382E+00	1.00	1.00	1.00	.00
2.33	-.75	.00	2.8	.354E+00	1.00	1.00	1.00	.00
2.66	-.75	.00	3.0	.338E+00	1.00	1.00	1.00	.00
2.99	-.75	.00	3.0	.329E+00	1.00	1.00	1.00	.00
3.32	-.75	.00	3.1	.320E+00	1.00	1.00	1.00	.00

Cumulative travel time = 6. sec

END OF MOD151: WAKE RECIRCULATION

BEGIN MOD152: LIFT OFF/FALL DOWN

Profile definitions:

B = Gaussian 1/e (37%) half-width, normal to trajectory
S = hydrodynamic centerline dilution
C = centerline concentration (includes reaction effects, if any)

Inflow (attached) and outflow (free) conditions:

X	Y	Z	S	C	B
3.32	-.75	.00	3.1	.320E+00	1.00
5.32	-.75	.00	3.1	.320E+00	.80

Cumulative travel time = 9. sec

END OF MOD152: LIFT OFF/FALL DOWN

BEGIN CORJET (MOD110): JET/PLUME NEAR-FIELD MIXING REGION

Plume-like motion after lift off/fall down.

The WIDTH PREDICTION B in the first entry below may exhibit some mismatch
(up to a factor of 1.5) relative to the last entry of the previous module.
This is unavoidable due to differences in the width definitions.
The actual physical transition will be smoothed out.

Profile definitions:
B = Gaussian 1/e (37%) half-width, normal to trajectory
S = hydrodynamic centerline dilution
C = centerline concentration (includes reaction effects, if any)

X	Y	Z	S	C	B
5.32	-.75	.00	3.1	.320E+00	.46
6.52	-.75	.03	3.1	.320E+00	.48
7.79	-.75	.10	3.1	.320E+00	.51
9.05	-.75	.22	3.1	.320E+00	.55
10.32	-.75	.37	3.5	.287E+00	.59
11.50	-.75	.51	4.0	.252E+00	.63
12.76	-.75	.68	4.6	.219E+00	.68
14.03	-.75	.85	5.2	.193E+00	.73
15.29	-.75	1.02	5.9	.171E+00	.78
16.55	-.75	1.19	6.6	.153E+00	.83
17.73	-.75	1.35	7.2	.138E+00	.87
18.99	-.75	1.52	8.0	.125E+00	.92
20.25	-.75	1.68	8.8	.114E+00	.96
21.52	-.75	1.84	9.6	.104E+00	1.01
22.78	-.75	2.01	10.4	.962E-01	1.05
23.96	-.75	2.16	11.2	.894E-01	1.09
25.23	-.75	2.31	12.0	.830E-01	1.13
26.49	-.75	2.47	12.9	.774E-01	1.17
27.75	-.75	2.62	13.8	.724E-01	1.21
29.02	-.75	2.77	14.7	.679E-01	1.26
30.20	-.75	2.91	15.6	.642E-01	1.29
31.47	-.75	3.06	16.5	.605E-01	1.33
32.73	-.75	3.20	17.5	.572E-01	1.37
34.00	-.75	3.34	18.4	.542E-01	1.41

35.26	-.75	3.49	19.4	.515E-01	1.45
36.45	-.75	3.62	20.4	.491E-01	1.48
37.71	-.75	3.76	21.4	.468E-01	1.52
38.98	-.75	3.89	22.4	.447E-01	1.55
40.24	-.75	4.03	23.4	.427E-01	1.59
41.51	-.75	4.16	24.4	.409E-01	1.63
42.69	-.75	4.29	25.4	.393E-01	1.66
43.96	-.75	4.42	26.5	.377E-01	1.69
45.23	-.75	4.55	27.6	.363E-01	1.73
46.49	-.75	4.68	28.6	.349E-01	1.76
47.76	-.75	4.81	29.7	.336E-01	1.80
48.95	-.75	4.93	30.8	.325E-01	1.83
50.21	-.75	5.05	31.9	.314E-01	1.86
51.48	-.75	5.18	33.0	.303E-01	1.89
52.75	-.75	5.30	34.1	.293E-01	1.93
54.01	-.75	5.43	35.3	.283E-01	1.96
55.20	-.75	5.54	36.4	.275E-01	1.99
56.47	-.75	5.66	37.5	.266E-01	2.02
57.73	-.75	5.78	38.7	.258E-01	2.05
59.00	-.75	5.90	39.9	.251E-01	2.08
60.19	-.75	6.01	41.0	.244E-01	2.11
61.46	-.75	6.13	42.2	.237E-01	2.14
62.72	-.75	6.25	43.4	.231E-01	2.17
63.99	-.75	6.37	44.6	.224E-01	2.20
65.26	-.75	6.48	45.8	.218E-01	2.23
66.45	-.75	6.59	47.0	.213E-01	2.26
67.72	-.75	6.70	48.2	.208E-01	2.29

Cumulative travel time = 104. sec

END OF CORJET (MOD110): JET/PLUME NEAR-FIELD MIXING REGION

BEGIN MOD131: LAYER BOUNDARY/TERMINAL LAYER APPROACH

Control volume inflow:

X	Y	Z	S	C	B
67.72	-.75	6.70	48.2	.208E-01	2.29

Profile definitions:

BV = top-hat thickness, measured vertically
BH = top-hat half-width, measured horizontally in Y-direction
ZU = upper plume boundary (Z-coordinate)
ZL = lower plume boundary (Z-coordinate)
S = hydrodynamic average (bulk) dilution
C = average (bulk) concentration (includes reaction effects, if any)

X	Y	Z	S	C	BV	BH	ZU	ZL	
65.42	-.75	9.00	48.2	.208E-01	.00	.00	9.00	9.00	
66.11	-.75	9.00	48.2	.208E-01	2.85	1.43	11.85	9.00	
66.80	-.75	9.00	48.2	.208E-01	3.37	2.02	12.37	9.00	
67.49	-.75	9.00	48.2	.208E-01	3.71	2.48	12.71	9.00	
68.17	-.75	9.00	49.5	.202E-01	3.96	2.86	12.96	9.00	

68.86	-.75	9.00	55.6	.180E-01	4.15	3.20	13.15	9.00
69.55	-.75	9.00	64.1	.156E-01	4.29	3.51	13.29	9.00
70.24	-.75	9.00	71.8	.139E-01	4.40	3.79	13.40	9.00
70.92	-.75	9.00	77.2	.130E-01	4.47	4.05	13.47	9.00
71.61	-.75	9.00	80.0	.125E-01	4.51	4.29	13.51	9.00
72.30	-.75	9.00	81.9	.122E-01	4.53	4.53	13.53	9.00

Cumulative travel time = 112. sec

END OF MOD131: LAYER BOUNDARY/TERMINAL LAYER APPROACH

** End of NEAR-FIELD REGION (NFR) **

BEGIN MOD141: BUOYANT AMBIENT SPREADING

Profile definitions:
- BV = top-hat thickness, measured vertically
- BH = top-hat half-width, measured horizontally in Y-direction
- ZU = upper plume boundary (Z-coordinate)
- ZL = lower plume boundary (Z-coordinate)
- S = hydrodynamic average (bulk) dilution
- C = average (bulk) concentration (includes reaction effects, if any)

Plume Stage 1 (not bank attached):

X	Y	Z	S	C	BV	BH	ZU	ZL
72.30	-.75	9.00	81.9	.122E-01	4.53	4.53	13.53	9.00
73.98	-.75	9.00	82.7	.121E-01	4.46	4.64	13.46	9.00
75.66	-.75	9.00	83.4	.120E-01	4.39	4.75	13.39	9.00
77.34	-.75	9.00	84.2	.119E-01	4.33	4.86	13.33	9.00
79.01	-.75	9.00	84.9	.118E-01	4.28	4.96	13.28	9.00
80.69	-.75	9.00	85.7	.117E-01	4.22	5.07	13.22	9.00
82.37	-.75	9.00	86.4	.116E-01	4.17	5.18	13.17	9.00
84.05	-.75	9.00	87.2	.115E-01	4.13	5.28	13.13	9.00
85.73	-.75	9.00	88.0	.114E-01	4.08	5.38	13.08	9.00
87.41	-.75	9.00	88.7	.113E-01	4.04	5.49	13.04	9.00
89.09	-.75	9.00	89.5	.112E-01	4.00	5.59	13.00	9.00
90.77	-.75	9.00	90.3	.111E-01	3.97	5.69	12.97	9.00
92.45	-.75	9.00	91.1	.110E-01	3.93	5.79	12.93	9.00
94.13	-.75	9.00	91.9	.109E-01	3.90	5.89	12.90	9.00
95.81	-.75	9.00	92.7	.108E-01	3.87	5.98	12.87	9.00
97.48	-.75	9.00	93.5	.107E-01	3.84	6.08	12.84	9.00
99.16	-.75	9.00	94.3	.106E-01	3.82	6.18	12.82	9.00
100.84	-.75	9.00	95.1	.105E-01	3.79	6.27	12.79	9.00
102.52	-.75	9.00	96.0	.104E-01	3.77	6.37	12.77	9.00
104.20	-.75	9.00	96.8	.103E-01	3.75	6.46	12.75	9.00
105.88	-.75	9.00	97.7	.102E-01	3.72	6.56	12.72	9.00
107.56	-.75	9.00	98.5	.101E-01	3.71	6.65	12.71	9.00
109.24	-.75	9.00	99.4	.101E-01	3.69	6.74	12.69	9.00
110.92	-.75	9.00	100.3	.997E-02	3.67	6.83	12.67	9.00
112.60	-.75	9.00	101.2	.988E-02	3.65	6.92	12.65	9.00
114.28	-.75	9.00	102.1	.979E-02	3.64	7.01	12.64	9.00
115.95	-.75	9.00	103.0	.970E-02	3.63	7.10	12.63	9.00
117.63	-.75	9.00	104.0	.962E-02	3.61	7.19	12.61	9.00

119.31	-.75	9.00	104.9	.953E-02	3.60	7.28	12.60	9.00
120.99	-.75	9.00	105.9	.944E-02	3.59	7.37	12.59	9.00
122.67	-.75	9.00	106.9	.936E-02	3.58	7.46	12.58	9.00
124.35	-.75	9.00	107.9	.927E-02	3.57	7.54	12.57	9.00
126.03	-.75	9.00	108.9	.919E-02	3.57	7.63	12.57	9.00
127.71	-.75	9.00	109.9	.910E-02	3.56	7.72	12.56	9.00
129.39	-.75	9.00	110.9	.902E-02	3.55	7.80	12.55	9.00
131.07	-.75	9.00	111.9	.893E-02	3.55	7.89	12.55	9.00
132.75	-.75	9.00	113.0	.885E-02	3.54	7.97	12.54	9.00
134.42	-.75	9.00	114.1	.877E-02	3.54	8.06	12.54	9.00
136.10	-.75	9.00	115.1	.868E-02	3.54	8.14	12.54	9.00
137.78	-.75	9.00	116.2	.860E-02	3.53	8.22	12.53	9.00
139.46	-.75	9.00	117.4	.852E-02	3.53	8.31	12.53	9.00
141.14	-.75	9.00	118.5	.844E-02	3.53	8.39	12.53	9.00
142.82	-.75	9.00	119.6	.836E-02	3.53	8.47	12.53	9.00
144.50	-.75	9.00	120.8	.828E-02	3.53	8.55	12.53	9.00
146.18	-.75	9.00	122.0	.820E-02	3.53	8.63	12.53	9.00
147.86	-.75	9.00	123.1	.812E-02	3.53	8.72	12.53	9.00
149.54	-.75	9.00	124.4	.804E-02	3.53	8.80	12.53	9.00
151.22	-.75	9.00	125.6	.796E-02	3.54	8.88	12.54	9.00
152.89	-.75	9.00	126.8	.789E-02	3.54	8.96	12.54	9.00
154.57	-.75	9.00	128.1	.781E-02	3.54	9.04	12.54	9.00
156.25	-.75	9.00	129.3	.773E-02	3.55	9.12	12.55	9.00

Cumulative travel time = 252. sec

END OF MOD141: BUOYANT AMBIENT SPREADING

Bottom coordinate for FAR-FIELD is determined by average depth, ZFB = 2.00m

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BEGIN MOD161: PASSIVE AMBIENT MIXING IN UNIFORM AMBIENT

Vertical diffusivity (initial value) = .734E-01 m^2/s
Horizontal diffusivity (initial value) = .184E+00 m^2/s

Profile definitions:
BV = Gaussian s.d.*sqrt(pi/2) (46%) thickness, measured vertically
= or equal to layer depth, if fully mixed
BH = Gaussian s.d.*sqrt(pi/2) (46%) half-width,
measured horizontally in Y-direction
ZU = upper plume boundary (Z-coordinate)
ZL = lower plume boundary (Z-coordinate)
S = hydrodynamic centerline dilution
C = centerline concentration (includes reaction effects, if any)

Plume Stage 1 (not bank attached):

X	Y	Z	S	C	BV	BH	ZU	ZL	
156.25	-.75	9.00	129.3	.773E-02	3.55	9.12	12.55	9.00	
553.13	-.75	9.00	603.4	.166E-02	7.00	21.55	16.00	9.00	
950.00	-.75	9.00	814.3	.123E-02	7.00	29.08	16.00	9.00	
1346.88	-.75	9.00	980.9	.102E-02	7.00	35.03	16.00	9.00	
1743.75	-.75	9.00	1123.0	.890E-03	7.00	40.11	16.00	9.00	
2140.63	-.75	9.00	1249.0	.801E-03	7.00	44.61	16.00	9.00	

2537.50	-.75	9.00	1363.5	.733E-03	7.00	48.70	16.00	9.00
2934.38	-.75	9.00	1469.0	.681E-03	7.00	52.47	16.00	9.00
3331.25	-.75	9.00	1567.5	.638E-03	7.00	55.98	16.00	9.00
3728.13	-.75	9.00	1660.1	.602E-03	7.00	59.29	16.00	9.00
4125.00	-.75	9.00	1747.9	.572E-03	7.00	62.42	16.00	9.00
4521.88	-.75	9.00	1831.4	.546E-03	7.00	65.41	16.00	9.00
4918.75	-.75	9.00	1911.3	.523E-03	7.00	68.26	16.00	9.00
5315.63	-.75	9.00	1988.0	.503E-03	7.00	71.00	16.00	9.00
5712.50	-.75	9.00	2061.8	.485E-03	7.00	73.64	16.00	9.00
6109.38	-.75	9.00	2133.1	.469E-03	7.00	76.18	16.00	9.00
6506.25	-.75	9.00	2202.0	.454E-03	7.00	78.64	16.00	9.00
6903.13	-.75	9.00	2268.9	.441E-03	7.00	81.03	16.00	9.00
7300.00	-.75	9.00	2333.9	.428E-03	7.00	83.35	16.00	9.00
7696.88	-.75	9.00	2397.1	.417E-03	7.00	85.61	16.00	9.00
8093.75	-.75	9.00	2458.6	.407E-03	7.00	87.81	16.00	9.00
8490.63	-.75	9.00	2518.7	.397E-03	7.00	89.95	16.00	9.00
8887.50	-.75	9.00	2577.4	.388E-03	7.00	92.05	16.00	9.00
9284.38	-.75	9.00	2634.8	.380E-03	7.00	94.10	16.00	9.00
9681.25	-.75	9.00	2690.9	.372E-03	7.00	96.10	16.00	9.00
10078.13	-.75	9.00	2745.9	.364E-03	7.00	98.07	16.00	9.00
10475.00	-.75	9.00	2799.8	.357E-03	7.00	99.99	16.00	9.00
10871.88	-.75	9.00	2852.7	.351E-03	7.00	101.88	16.00	9.00
11268.75	-.75	9.00	2904.6	.344E-03	7.00	103.74	16.00	9.00
11665.63	-.75	9.00	2955.6	.338E-03	7.00	105.56	16.00	9.00
12062.50	-.75	9.00	3005.8	.333E-03	7.00	107.35	16.00	9.00
12459.38	-.75	9.00	3055.1	.327E-03	7.00	109.11	16.00	9.00
12856.25	-.75	9.00	3103.7	.322E-03	7.00	110.85	16.00	9.00
13253.13	-.75	9.00	3151.5	.317E-03	7.00	112.55	16.00	9.00
13650.00	-.75	9.00	3198.6	.313E-03	7.00	114.23	16.00	9.00
14046.88	-.75	9.00	3245.0	.308E-03	7.00	115.89	16.00	9.00
14443.75	-.75	9.00	3290.7	.304E-03	7.00	117.53	16.00	9.00
14840.63	-.75	9.00	3335.8	.300E-03	7.00	119.14	16.00	9.00
15237.50	-.75	9.00	3380.4	.296E-03	7.00	120.73	16.00	9.00
15634.38	-.75	9.00	3424.3	.292E-03	7.00	122.30	16.00	9.00
16031.25	-.75	9.00	3467.7	.288E-03	7.00	123.85	16.00	9.00
16428.13	-.75	9.00	3510.5	.285E-03	7.00	125.38	16.00	9.00
16825.00	-.75	9.00	3552.8	.281E-03	7.00	126.89	16.00	9.00
17221.88	-.75	9.00	3594.7	.278E-03	7.00	128.38	16.00	9.00
17618.75	-.75	9.00	3636.0	.275E-03	7.00	129.86	16.00	9.00
18015.63	-.75	9.00	3676.9	.272E-03	7.00	131.32	16.00	9.00
18412.50	-.75	9.00	3717.3	.269E-03	7.00	132.76	16.00	9.00
18809.38	-.75	9.00	3757.3	.266E-03	7.00	134.19	16.00	9.00
19206.25	-.75	9.00	3796.9	.263E-03	7.00	135.60	16.00	9.00
19603.13	-.75	9.00	3836.1	.261E-03	7.00	137.00	16.00	9.00
20000.00	-.75	9.00	3874.9	.258E-03	7.00	138.39	16.00	9.00

Cumulative travel time = 33323. sec

Simulation limit based on maximum specified distance = 20000.00 m.
This is the REGION OF INTEREST limitation.

END OF MOD161: PASSIVE AMBIENT MIXING IN UNIFORM AMBIENT

CORMIX1: Submerged Single Port Discharges End of Prediction File

1,1111E+76