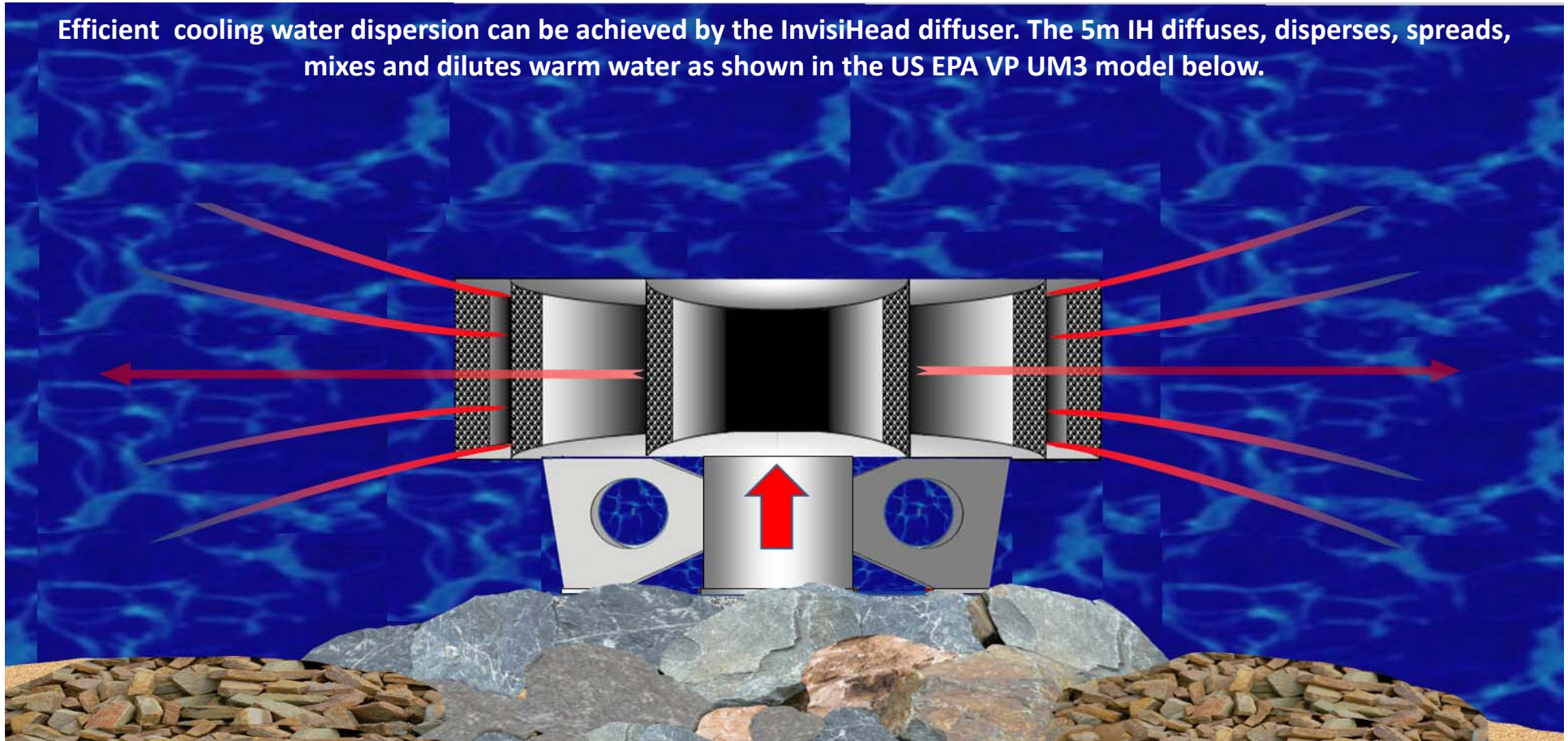


Cooling Water Dispersion Modeling using US EPA VP UM3

Efficient cooling water dispersion can be achieved by the InvisiHead diffuser. The 5m IH diffuses, disperses, spreads, mixes and dilutes warm water as shown in the US EPA VP UM3 model below.



Heat decays from 41°C to 33.46°C at 0.02m from the diffuser, and reaches the required dilution of 17 just after leaving the diffuser; it drops to 33.01°C at the edge of the ZID or acute zone 30m away from the diffuser; it reaches ambient temperature of 33°C at 200m away from the diffuser or 100m before reaching the edge of the Allocated Impact Zone (AIZ)

American Eco Systems, LLC.

1620 S Wood Ave, Linden NJ 07036 USA

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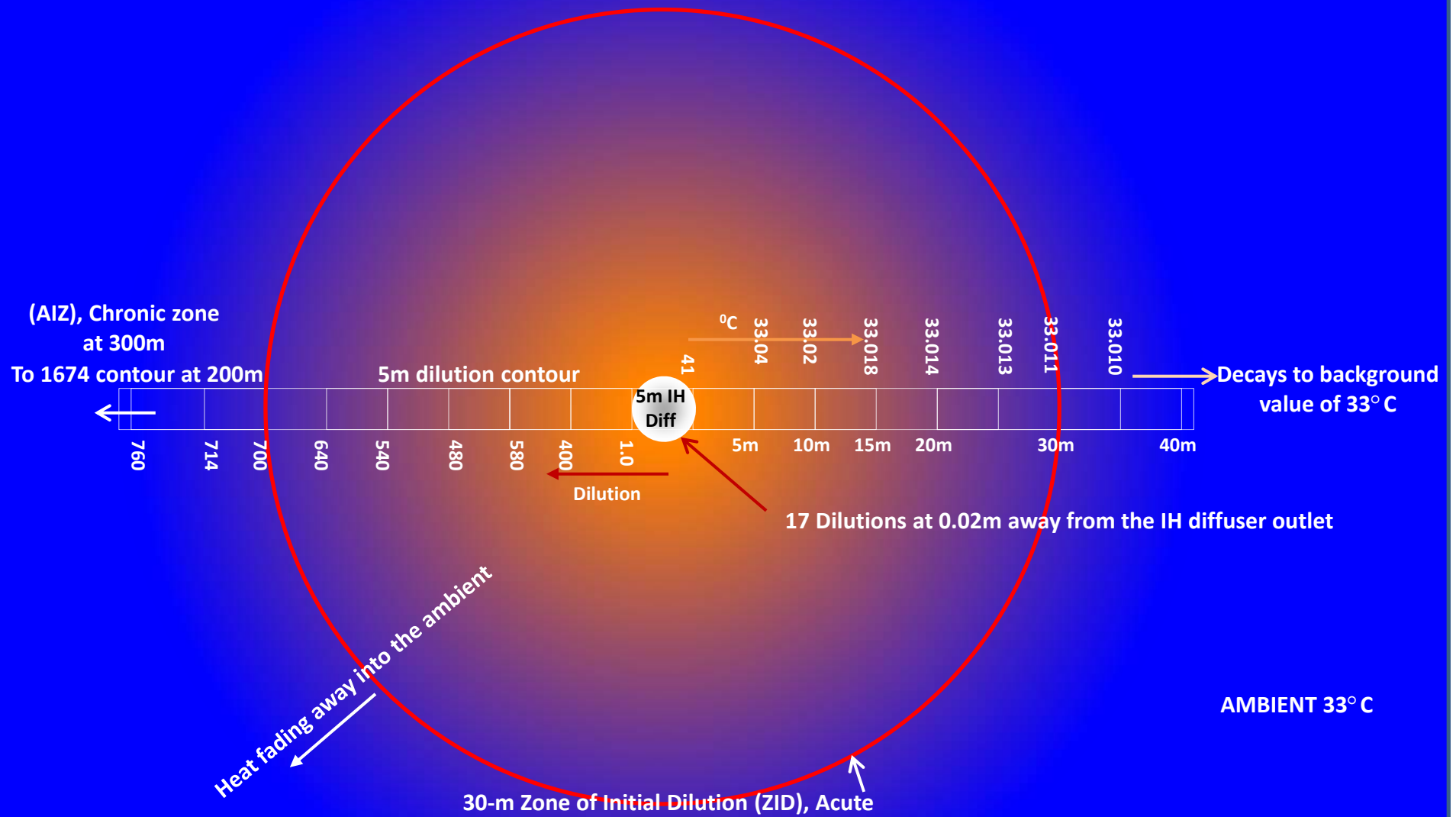
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www.ameosys.com



THE INVISIHEAD DIFFUSER



Thermal Diffusion and Decay Modeling using US EPA VP UM3

/ Windows UM3. 8/27/2018 7:42:07 PM

Case 1: ambient file C:\Plumes\Thermal.001.db; Diffuser table record 1: -----

Depth	Amb-cur	Amb-dir	Amb-sal	Amb-tem	Amb-pol	Decay	Far-spd	Far-dir	Disprsn
m	m/s	deg	psu	C	kg/kg	s-1	m/s	deg	m0.67/s2
0.0	0.05	90.0	45.0	33.0	33.0	0.0	4.1216E+8	4.1216E+8	0.0003
7.0	0.05	90.0	45.0	33.0	33.0	0.0	4.1216E+8	4.1216E+8	0.0003

P-dia	P-elev	V-angle	H-angle	Ports Spacing	AcuteMZ	ChrnMZ	P-depth	Ttl-flo	Eff-sal	Temp	Polutnt
(m)	(m)	(deg)	(deg)	(m)	(m)	(m)	(m)	(m3/s)	(psu)	(C)	(kg/kg)
6.00E-7	1.5	-10.0	90.0	1.68E+7	9.56E-9	35.0	350.0	3.5	2.045	45.0	41.0

Froude number: 3.1924E+9

Step	Rise	Amb-cur	P-dia	Polutnt	Dilutn	x-posn	y-posn
	(m)	(m/s)	(m)	(kg/kg)	(%)	(m)	(m)
0	0.0	0.05	6.000E-7	41.0	1.0	0.0	0.0

Potential for more dilution

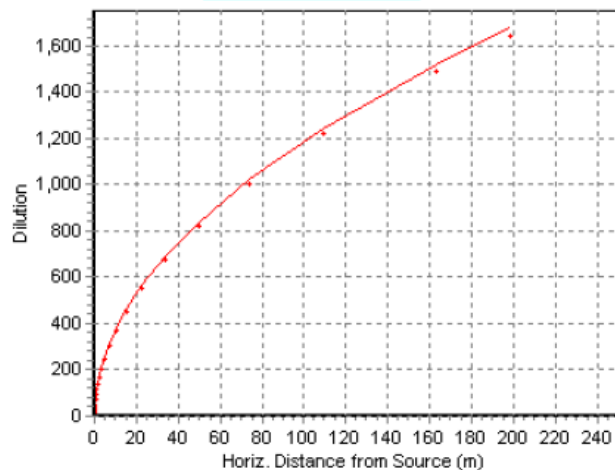
100	-0.00064	0.05	0.00146	34.1	7.225	0.0	0.00363
144	-0.00371	0.05	0.00833	33.46	17.26	0.0	0.0211
200	-0.0342	0.05	0.0765	33.15	52.33	0.0	0.194
277	-0.722	0.05	1.615	33.03	240.4	0.0	4.097
300	-1.796	0.05	4.017	33.02	379.1	0.0	10.19
332	-6.379	0.05	14.27	33.01	714.4	0.0	36.18
375	-35.02	0.05	78.31	33.0	1673.9	0.0	198.6

max dilution reached

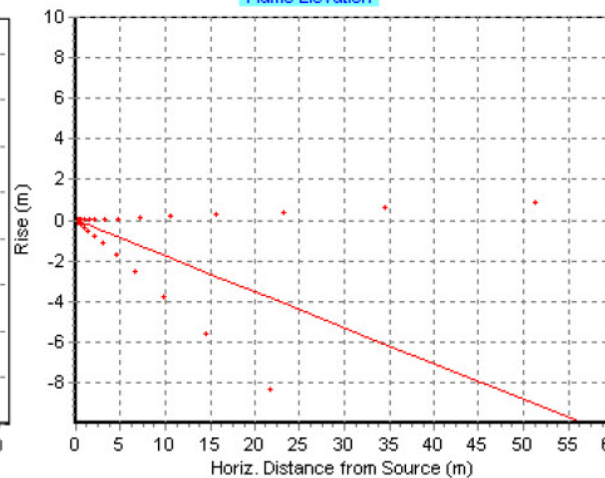
bottom hit,

acute zone,
surface.

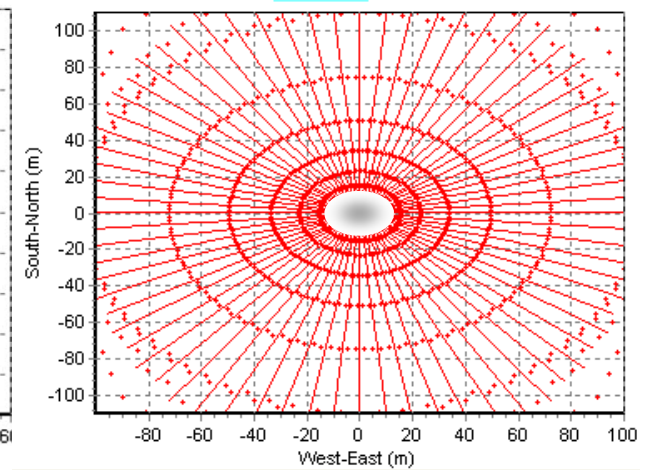
Plumes Dilution Prediction



Plume Elevation



Plan View



The InvisiHead diffuser discharges effluent in a round surround, side ways, up, straight, and down funneling out flow and efficiently manages effluent diffusion and dispersion.