National UIC Technical Workgroup Final Work Product #2

A Underground Injection Control Program Summary of

Regional and State Implementation of the Area of Review

One of the topics which the EPA UIC Technical Workgroup determined important, during its initial development of issues upon which work, was the collection, summation and distribution of information regarding how EPA and State UIC programs implement the Area of Review concept. The attached table has been developed to show the various ways each of the EPA regions and states implement the Area of Review requirements as set forth in Section 146.6 of the UIC regulations.

The information in this table was obtained from a questionnaire which was sent out to each of the EPA regional UIC program offices, who in turn, sent it to their respective primacy states. The questionnaire can be found in Appendix A. The two columns of the table, under the heading "fixed radius", respond to Parts (a) and (c) of question one. The next two columns, under the heading "calculated approach", respond to Parts (a) and (c) of question two. The final three columns of the table respond to questions four, five and six, respectively.

If during your review of this table any inaccuracies become apparent, or if you desire more specific information on how the Area of Review is administered in a particular region or primacy state, please contact the respective UIC Technical Workgroup member who represents the region and/or state of interest. A list of Workgroup members is provided in Attachment B.

AREA OF REVIEW SUMMARY

			Fixed Radius		Calculated approach				AOR on
Region/ State	Agency	Well Class	Distance	Verified by Calcu- lation	Formula Used	# times > 1/4 mile	Monitoring Wells?	AOR Inspec- ted?	Rule Auth Wells? Call- in?
II NY	USEPA	IIR,IID	1/4 mi	Yes	"Rad. of Press." + Frac. Anlsys.0	9x	Yes, DW wells	No	No
III PA/VA	USEPA	IIR,IID	1/4 mi	Yes, IID	"Rad. of Press."	Twice	Sometimes	Yes	No
WV	DOE	IID	1/4 mi	Yes	"Rad. of Press", Res. Eng. Mdl.	None	Sometimes	Yes	Yes, Call-in
IV KY/TN	USEPA	IIR,IID	1/4 mi	No(a)	"Rad. of Press."	NA			
MS	MO&GB	IIR,IID	1/4 mi	Yes(b)	"Rad. of Press."	NA			

AL	AO&GB	IIR,IID	1/4 mi	No	"Rad. Of Press."	NA			
FL	USEPA	IIR,IID	1/4 mi	No	"Rad. Of Press."	NA			
	USEPA	I	2 mi	No	Not Used	NA	No	No	No
V MI	USEPA	IIR,IID III,V (deep)	1/4 mi	No(c)	Section 146.6	NA	No	No	Yes, Call-in
IL	IEPA	I	2.5 mi	Yes	Section 146.6	None	Yes	No	No
	IDNR	IIR,IID	1/4 mi	No(c)	Not Used	NA	No	No	No
IN	USEPA	I	2 mi	No	Not Used(1)	NA	Yes	No	No
	IDNR	IIR,IID	1/4 mi	No(c)	Not Used	NA	No N	No	
	ОЕРА	I	1/4 mi	Yes	See Attached (2)	None	Yes	No	No
ОН	ODNR	IIR,IID	1/4 mi if q<200 bbl/d/yr 1/2 mi if q>200 bbl/d/yr	Yes	See Attached (3)	Distance yields to 200 bbl/d/yr rate	No	Yes	No
		III	1/4 mi	No	None	NA	No	Yes	
VI (Osage)	USEPA	IIR,IID	1/4 mi	Yes(d)	"Rad. of Press."	?	Few	No	No
OK/NM	Tribal	IIR,IID	1/2 mi	Yes	"Rad. of Press."	?	Few	No	No
AR	ADPC&E	I NHAZ I HAZ	1/2 mi 2 mi	Yes(e)	Section 146.6		No	No	No
AK	AOGC	IIR,IID, V	1/2 mi	Yes	Not Used		No	No	Yes, Call-in
LA	ос	I	2 mi	Some	"Rad. of Press."(f)	Rarely	No	No	No
	LDNR	All Others	1/4 mi	No	Not Used	NA	No	No	Yes, Call-in
NM	NMED	I,III,V	2.5 mi or 1/4 mi if Calc=0 (g)	Some	"Rad. of Press."	Rarely	Sometimes	Some	No
	NMOCD	IIR,IID I NHAZ, III	1/2 mi 1/4 mi	No No	Not Used	NA NA	No No	No No	No No
ОК	occ	IIR,IID	1/4 mi (non-	Yes(h)	"Rad.of Press."(h)	?	Sometimes	No	Yes, Call-in

			com) 1/2 mi for com.						
	ODEQ	I,III,V	NA	NA	Section 146.6	Most All	No	Yes	Yes
TX	RCC	IIR,IID	1/4 mi	No	Applicants may use "Rad. Of Press." calc.	Rarely	No	No	No
	TNRCC	I	2 1/2 mi	Yes	Section 146.6	2.5 mi overrules calc.	Very Few [3]	Yes/IID	No
		III,V	1/4 mi	No	Not Used	NA	Class III	No	No
VII MO	MDNR	IIR,IID	1/2 mi	No	Not Used	NA	No	No	No
	ксс	IIR,IID	1/4 mi	Yes	Section 146.6	Rarely	Sometimes	Yes	Yes, Call-in
		I,III,V	2.5 mi (IH)	Yes	Con of Influence	None	No	Yes	No
KS	KDHE		1 mi (I non-haz)	Yes	Cone of Influence	3 times	No	No	No
	KDHE	1,111,V	1/4 mi (III,V)	No	Not Use	NA	Class V remediation/ Class III sometimes	No	No
	NOGCC	IIR,IID	1/2 mi min	No	Not Used	NA	Sometimes	No	Yes
NE		I,III,V	No (I)	NA	"Radius of Press."	?	Sometimes	Some	No
	DEQ		No (III)	NA	III	?	Sometimes	Some	No
			1000ft 1 mi (V)	Yes	Not Used	NA	Sometimes	Some	No
VIII MT	USEPA	IIR,IID	1/4 mi	Yes	"Rad.of Press."	Once	No	No	No
СО	cogcc	IIR,IID	1/4 mi	Some	Cylindric Calc.(i)	None	No	No	No
WY	wogcc	IIR,IID	1/4mi	Yes, IID	?	None	Yes, IIR	No	Yes, Call-in
UT		IIR,IID	1/2 mi	No			Sometimes		
I X AZ		III	1/4 mi	Some	Numeric Model (j)	None	Yes	Yes	Yes
CA		IIR,IID	geology depend.	No	Not Used	NA	Sometimes	No	No

НІ	USEPA	V	1/4 mi to 1/2 mi	No	Concern is Impact on Ocean	NA	Yes	No	No
NV		II,III,V	1 mi	No	Will allow but none submitted	NA	For Class V	Some	No
Navajo	USEPA	IIR,IID,	1/2 mi	Yes	"Rad. of Press." (modified)	Rarely	For Class III	Some	No
X AK	AOGCC	IIR,IID	1/4mi	No	Utilize Fracture Gradients	NA	Sometimes	No	No

- a. Don't feel they have good data
- b. Shallow injectors
- c. Calculated to limits of endangerment if problem wells are present
- d. Not in fracture flow formations
- e. Select most conservative value
- f. Pc=0.433[(piz)(Diz-Dusdw)+(pUSDW)(Dusdw-BUSDW)]-Po
- g. New Mexico radius of pressure influence calculation
- h. Oklahoma radius of pressure influence calculation
- i. Uses formation thickness, porosity, rate, 15 year life
- j. Uses hydraulic conductivity, gradient, porosity, thickness, confined/unconfined, injection rate
- 1. When the facility is injecting banned hazardous waste, the AOR is expanded to include the modeled plume boundary
- 2. Ohio EPA's formula can be obtained from Region or State agency
- 3. Ohio DNR's formula can be obtained from Region or State agency