

**MUNICIPAL AND RESIDUAL WASTE PROGRAM
FINAL RULEMAKING AMENDMENTS
BENEFICIAL USE OF COAL ASH
COMMENT AND RESPONSE DOCUMENT**

INTRODUCTION

In assembling this document, the Department of Environmental Protection (“DEP”) has addressed all pertinent and relative comments associated with this package. For the purposes of this document, comments of similar subject material have been grouped together and responded to accordingly.

During the public comment period, the Environmental Quality Board (“Board”) received comments from over 1100 commentators, including 13 industry organizations, 7 environmental groups, the Pennsylvania Chamber of Business and Industry, and the Independent Regulatory Review Commission (IRRC). The following table lists these organizations and individuals. The Commentator ID number is found in parentheses following the comments in the comment/response document.

Note: Several comments concerned current practice or past DEP actions involving coal ash beneficial use, comments on technical guidance implementation, and specific sites where coal ash had been placed or disposed. These comments were not considered to be pertinent to the proposed regulations. As such, they were not included in this document. It is recommended that commentators who included these issues either contact their legislators to propose changes to the existing laws or DEP to register complaints about specific sites or request changes to the pertinent guidance documents.

Table of Commentators

ID	Name	Affiliation	City
1	Mike Bodnar	I and I Engineering Roaring Run Watershed Association	Pottsville
2	Neill Andritz	CME Management	Apollo
3	Steve Hinderliter	LLC Evergreen Environmental, Inc.	Latrobe
4	Mark McClellan		Harrisburg
5	Bruce Dickie		Madison, WI
6	Mariko Kaonohi		Matteson, IL Schaumburg, IL
7	Harrison Bertram Dr. Sarah Emily		
8	Labance		Vernon, NJ Round Lake Beach, IL
9	Roger Hannah		San Francisco, CA
10	Dean Thomas Leh		CA
11	L.Gols Mr. and Mrs. Danny		Natick, MA
12	Watson		Kirkland, WA

13	Daisely Rice	Santa Barbara, CA
14	Ryan McIntyre	Chicago, IL
15	Julia Burwell	Bellevue, WA
16	Emerald Ducoeur	Doylestown
17	Mary Shaw	Norristown
18	Bob Johnson	Pittsburgh
19	Kris Harker	Lancaster
20	S. Smith	West Chester
21	Gary Scott	Du Bois
22	Patti Byra	York Haven
23	Noah Sandler	Bethel Park
24	Pamela Fritzsche	Coatesville
25	Joy Boonin	Swarthmore
26	Nancy Crane	State College
27	William Scott	Mansfield
28	Dr. Greg Skutches Mr. and Mrs. Paul Smith	Bethlehem Exton
29	Smith	
30	Maggie Smith	Hollidaysburg
31	Norma Dupire	Pittsburgh
32	Jeff Erwin	Chalfont
33	Robert Abel	Lehighton
34	John Rossi	Chadds Ford
35	Sylvia Yoder	Paoli
36	William Hesse	Venetia
37	Kevin Dougherty	Media Dingmans Ferry
38	Christina Rodriguez	
39	Natalie Greene	Glenside
40	Brian Denton	Carlisle
41	Michael Gadowski	Sterling Kennett Square
42	Richard Inglis	
43	Rob Belke	Doylestown
44	Robin Wilson	Hawley Newtown Square
45	Rose Ann Mancini	
46	Lisa Rochelle	Easton
47	Javan Deloach	Mechanicsburg
48	James Kendall	Pittsburgh
49	Geoffrey Thulin	Cashtown
50	Craig Silbert	Hilltown
51	Robert Kiefer	Southampton
52	James Rohan	Bensalem
53	Jay Harter	Susquehanna
54	Dr. Alison Anderson	Philadelphia
55	Timothy Esposito	Elkins Park
56	Karen Vasily	Norristown
57	Emily Fertig	Pittsburgh
58	Andrea Liu	Swarthmore

59	Howard Rife	Reading
60	Nancy Crane	State College
61	Stephen Haynes	Irwin
62	Amy Edelman	Bala Cynwyd
63	Dr. Peter Mayes	Narberth
64	Mike Dellpenna	Malvern
65	BJ Searcy	Monessen
66	Tom Campbell	Allison Park
67	Dr. Fred Schultz	Ligonier
		N. Smithfield,
		RI
68	Tiffany Reed	York
69	Nowell Smith	Erie
70	Mark Peterson	
	Mr. and Mrs. Andrew	
71	Summa	Scranton
72	Naomi Winch	Whitehall
	Arthur	
73	DiBonaventura	Philadelphia
74	Dave Cooksley	
75	Mary Ballard	Wayne
76	Homer Wood	Gettysburg
77	Shirley Nitka	Philadelphia
78	Brenda Flores	Pittsburgh
79	Lynn Casella	Bridgevill
80	Richard Allebach	West Reading
81	Glenn Schlippert	Etters
82	Brad Krueger	West Chester
83	Caro Liu	Philadelphia
84	Dan Cush	Aspinwall
85	J. Draper	Philadelphia
86	Sarah Puleo	Philadelphia
87	Brian Fink	Philadelphia
		East
88	Renee Ebert	Stroudsburg
89	Carolyn Weber	State College
90	Ed Villanueva	Philadelphia
91	Reserved	
92	T. Bell	Pittsburgh
93	Dr. Carol Gold	State College
94	David Fiedler	Bensalem
95	William Walter	Pittsburgh
96	Brian Murr	Elizabethtown
97	Daniel Shearer	Halifax
	Mr. and Mrs. Lynda	
98	Farrell	Downingtown
99	Diane Jackson	East Liberty
	Angela Miller	
100	Mcgraw	Pittsburgh
101	Oliver Inslee	Downingtown
102	Elizabeth Shirey	State College
103	Ruth Roberts	Irwin
104	Becky Wells	Nottingham

105	Monika Skonieczny	Pittsburgh
106	George Manney	Philadelphia
107	Greta Aul	Lancaster
108	Karen Chady	Harrisburg
109	Kurt Dunkel	Shippensburg
110	Bill & Lynne Starrett	Lansdale
111	Diane Astleford	Drums
112	Damon Ealy	Pittsburgh
113	Christina Link	Willow Street
114	Trent Eisenhart	York
115	Gary Thornbloom	Julian
116	Pam Dull	Ambler
117	Richard Headley	Pittsburgh
118	Melissa May	State College
	Frances	
119	Hoenigswald	Philadelphia
120	Kerri Lacharite	Pittsburgh
121	Jennifer Riley	Royersford
122	Dennis Fisher	Broomall
123	Lisa Scherer	Marianna
124	Reserved	
125	K. Landes	Doylestown
126	Kimberly Maser	Lewisburg
127	Eileen Potts-Smith	Oakdale
128	Francis Palmarino	Drexel Hill
129	Brigitta Arden	Pittsburgh
130	Dennis Winters	Philadelphia
131	Jessica Kolber	Yardley
132	Gregory Flory	Lancaster
133	M. Denise Carroll	Devon
134	Pamela Utterback	Pottstown
135	Devin Curran	Honey Brook
136	Carol Drelbelbis	Port Matilda
137	Brian Taussig-Lux	Media
138	Dr. Rosemary Caolo	Scranton
139	Dr. Alice Kelley	Strafford
		Kennett
140	Selma Mayman	Square
141	David Clemens	Milton
142	Douglas Durlan	Swarthmore
143	Michael Gulash	McAdoo
144	James Meenan	Manheim
145	John Cooke	Haverford
146	Dr. James Browne	Philadelphia
		Natrona
147	Lauren Samay	Heights
148	Jeanne Zang	Leetsdale
149	Danielle Friend	Pittsburgh
150	Gary Crowder	Quakertown
151	Jane Leshinsky	Holland
152	Gretchen Hulse	Pittsburgh

153	Arlene Mercurio	New Kensington
154	W. Deal	Factoryville
155	Steven Silberman	Pittsburgh
156	Lynne Daub	Marietta
157	David Niklas	Clairton
158	Tracy Horter	Wayne
159	Wilfrido Ortega-Leon	Collegeville
160	Becky Eshelman Elizabeth	Fountain Hill
161	McCormick Dr. & Mrs. Jeffrey	Royersford
162	Kosterich	Wayne
163	Gabrielle Corso	Coopersburg
164	Dean Kendall	Leesport
165	Bob Bingham	Pittsburgh
166	Linda Potemken Larry and Gimone Hall	Wynnewood Ottsville
168	Jane Munley	Mountain Top
169	Cheryl Piperberg	Marietta
170	Joseph Erdeljac	West Chester
171	Michael Waskovich	Dalton
172	Jolynn Davis	Trout Run
173	James Flesher	Philadelphia
174	Karen Skorski	Bloomburg
175	Bruce Barr	Winfield
176	David Stanger	Pittsburgh
177	Michael Miller	Erie
178	Mark Dixon	Pittsburgh
179	Debbie Boesenberg	Oakdale Bear Creek Township
180	Paula Fall	Dunmore
181	Josette Novorosky	McDonald
182	Michele Cyprych	Allentown
183	Patricia Reich	Philadelphia
184	Kristian Glover	Allentown
185	Deborah Kear	Danville
186	June Reich Louis & Patricia Connell	Chambersburg
188	Mary Mester	Milford
189	Cary Bohl	Murrysville
190	Adam Marks Mr. & Mrs. Bernard Rubb	Phoenixville Sewickley
192	John Feissel	Philadelphia
193	Glenn Treichler	Northampton
194	Randy Francisco	Pittsburgh
195	Jed Williams	Philadelphia
196	Marilyn Cooper	Berwyn
197	Mrs. M. Vlah	Ellwood City

198	Matt Dallos	Boalsburg
199	Barbara Steele	Littlestown
200	Melissa Sealie	Reading
201	Carol Jaworski	Canonsburg
202	C. Smith	Bethlehem
203	Joe Elsinger	Ephrata
	Mr. & Mrs. Ben	
204	Sauder	Columbia
205	Arnold Schlichter	Conshohocken
	Dr. Harry	
206	Hochheiser	Pittsburgh
207	Margaret Sedlack	Pittsburgh
208	Mary Leitch	Philadelphia
209	Signe Hall	Downingtown
210	Linda Sall	Villanova
211	Linda Romeo	Warren
212	Louise Larkin	Pittsburgh
213	Barbara Supplee	Berwyn
214	Mark Puskar	Pittsburgh
215	Nancy Geist	Avondale
	Dr. Edward	
216	Silverman	Reading
217	Dannie Walker	Brookville
218	Allyson de Groat	Wayne
219	Kathy Gates	Lemoyne
220	Joy Harbeson	Philadelphia
221	Richard Ludlow	Yardley
222	Lynn Glorieux	Pittsburgh
223	Steve Kunz	Phoenixville
224	Sean Rearick	Saegertown
225	Robert Silverman	Philadelphia
226	Ariel Weimer	Manhatan
227	Ellen Smith	Havertown
228	John Jones	Pittsburgh
229	James Mcclister	Kittanning
230	John Fullen	Jeannette
231	Joseph Bertz	Lancaster
232	Dr. Jennifer Iriti	Imperial
233	Kiran Mull	Doylestown
234	Pat Laughlin	Etna
		East
235	Eugenia Eden	Stroudsburg
236	Kate Potter	Summit Station
237	Lauren McCarty	Glenside
238	Kathleen Reifke	Pottstown
239	Gary Finney	Erie
	Dr. and Mrs. Sam	
240	Keiser	Kutztown
241	Dr. Jon Piersol	Wexford
	Mr. and Mrs. Kevin	
242	Heffernan	Philadelphia
243	Joseph Devito	Pittsburgh

244	Arthur Soifer	Glenside
245	Fred Gillespie	Glen Mills
246	Anthony Panetta Mr. and Mrs.	Oil City
247	Stephen Smith	Bethlehem
248	Fran Interrante	Downingtown
249	Sasha Shyduroff	Pittsburgh
250	William Ridgeway	Scranton
251	Rosellen OSullivan	Bryn Athyn
252	Reserved	
253	Christopher Roche	Reading
254	Ronald Nordstrom	Rector
255	Robert Triplett	Hummelstown
256	Marcie Perchinsky	Scenery Hill
257	Jeff Lowry	Johnstown
258	Ronald Smith	Morrisville
259	Alison Greifenstein	Havertown
260	Gayle Shisler	Doylestown
261	Anne Swigart Mr. and Mrs. Robert	West Chester
262	Steininger	Phoenixville
263	Susan Crowle	Auburn
264	Jaynie Beard	Harrisburg
265	Vicki Nosal	Evans City
266	Lisa Long	Mechanicsburg
267	Jill Gleeson	Philipsburg
268	John Christian	Bloomsburg
269	Edmund Weisberg	Philadelphia
270	Attilia Shumaker	Sycamore
271	Weenta Girmay	Pittsburgh
272	Bonita Perry	Wynnewood
273	Torey Verts	Pittsburgh
274	Benita Campbell	Burgettstown
275	Alexandra O'Neill	Wynnewood East
276	Sheila Roseman	Petersburg
277	Diana Patsey	Oakmont
278	Ingrid Mc Millen	Audubon Harrisonburg, VA
279	Danielle Watson	Williamsport
280	Caleb Banas	Pittsburgh
281	Keith Knecht	Narberth
282	Deborah Lonsdorf	Shrewsbury
283	Phil Landis	McKeesport
284	Judy Arnal	Waynesburg
285	Terri Davin	Monroeville
286	Nancy Hosford	Lancaster
287	Dr. Hilary Aquino	West Mifflin
288	David Gaiter	Hamburg
289	Elanor Bagenstose	Lansdale
290	Jo Ann Moore	

291	Janet Crowther		Dalton
292	Sonia Kudalsky		Dalton
293	Laurel Falkenstein		Boiling Springs
294	Rhea Richardson		Wayne
	Mr. and Mrs. Ann &		
295	Robert Buzzell		Du Bois
			New
296	Deborah Geary		Cumberland
297	Michelle Hoff		Kintnersville
298	Steve Paylor		Ardmore
299	Adam Faja		Philadelphia
300	Angela Wiley		Pittsburgh
301	Bruce Moyer		Souderton
302	Martha Raak		Pittsburgh
303	Reserved		
304	Jacqueline Shock		Pittsburgh
	Fernando		
		Swarthmore	
305	Maldonado	College	Swarthmore
306	Shannon Elliot		Bensalem
307	Thomas Nunn		Allentown
308	Dr. Michael Balsai		Philadelphia
309	F. Leslie		Fayetteville
310	Jennifer Elam		Downingtown
311	Jeanie Nunn		Allentown
312	Carolyn Hughey		Montoursville
313	Keri Leaman		York
314	Brian Lewis		Elizabethtown
315	Jill Babore		Philadelphia
316	Charles Long		Pittsburgh
317	Jessie Skiffen		Greensburg
318	Helene Katz		Jim Thorpe
	Dr. and Mrs. Tom		
319	Owens		Indiana
320	Jorge Arauz		Philadelphia
321	Janice Horn		Clarion
	Jeffrey and		
322	Stephanie Rupertus		Philadelphia
	Dr. Lucinda Hart-		
	Gonzalez	Paradise	
323		Gardens and	
		Farm	Reynoldsville
324	Lloyd Goodman		Radnor
325	Richard Pearce		Jenkintown
326	Sherry Frost		Wayne
327	Alana Davis		Berwyn
328	Crystal Hoffman		Nanty Glo
329	Joanne Rheinlander		Marysville
			Huntingdon
330	Dr. Deborah Krupp		Valley
	Beverly Williamson-		
331	Pecori		McKees Rocks
332	Patrick McDaniel		Mercersburg
333	Marlene Kauffman		New Hope

334	Bryon Gliem	Pottsville
335	Libby Goldstein	Philadelphia
336	Karen Wagner	Philadelphia
337	June Gollatz	Bethlehem
338	Sandra Bonitt	Cheltenham
339	Reserved	
340	Judith Wood	Pittsburgh
341	Keith Britton	Cheltenham
342	Finn Hornum	Philadelphia
343	Colleen Fitzgerald Janet and John	Stony Run
344	Stoner	Akron
345	Kathleen Rengert	Unionville
346	Deanne O'Donnell Natalie Defee	Greensburg
347	Mendik	Jeannette
348	Bernard Lisowski	Upper Darby
349	Alice Logan	Pittsburgh
350	Lisa Hodaei	Jenkintown
351	Erich Freimuth	St. Davids
352	Patrick Ryan	Media
353	Amelia Schwendt	Landenberg
354	Danna Cornick Dr. & Mrs. Herbert	Nottingham
355	Skolnick	Monroeville
356	Barbara Litt	Pittsburgh Cranberry Township
357	Barbara Walters	Benton
358	Marianna Sokol	Narberth
359	Dr. Cynthia Gilman	Cranberry Township
360	Katelyn Warner	Lower Gwynedd
361	Frederick Rosen Mr. & Mrs. Todd	Croydon
362	Nixon	Philadelphia
363	Joan Kyler	Media
364	Amy Anna Dr. Marta	Philadelphia
365	Guttenberg	Newton, MA
366	Jennifer Filiault	Coopersburg
367	Dr. Barbara Benson	Monongahela
368	Agnes Schwenk	Bangor
369	David Laforest	Downingtown
370	Dr. Tim Wadkins	Dushore
371	Charles Younger	Bethel Park
372	Anthony Capobianco	Kennett Square
373	Jean Barker	Pittsburgh
374	Dr. Tim Pearce	Middletown
375	Virginia Harden	Camp Hill
376	Joe Hatcher	

377	Christina Glessner	Carbondale
378	Mary Lou Kleinbach	Mertztown
379	Gudrun Weinberg	Swarthmore
380	Dr. Frederick Reif	Pittsburgh
381	Severina Kluizenaar	West Grove
382	Rajan Wadhvani	Philadelphia
383	Barbara Vanhorn	Duncannon
384	John Furlong	Treose
	Mr. & Mrs. Edward	
385	Sinkler	Fountain Hill
386	Dr. Dwayne Haus	State College
387	Gregory Garansi	Wampum
388	Suzanne Hall	Mont Alto
389	Lynn Cowell	Meadville
		Fort
390	Nancy Jennings	Washington
391	Gary Bater	State College
392	Lisa Bleicher	Jim Thorpe
393	David Thinnes	Pittsburgh
394	Phil Starr	Lancaster
395	Jim Miller	Philadelphia
396	Jeri Schatz	Philadelphia
397	Natalie Greene	Pittsburgh
398	Thomas O'Donnell	Poyntelle
399	Miriam Parson	Pittsburgh
400	Samuel Wingard	Dayton
401	Dr. Kyoichi Haruta	Bethlehem
402	Mary Hart	Dalton
403	Michael D'Angelo	Lansdowne
404	Emily Wallace	Bethlehem
405	Dr. Helen Faller	Philadelphia
406	Cheryl Redfern	Philadelphia
407	Eric Fanning	Lititz
408	Robert Gibb	Homestead
409	Dr. G. Chapman	Bethlehem
410	Jennifer Feder	Warrington
411	Loretta Bengivenga	Pen Argyl
412	Kim Comer	Philadelphia
413	Tamara Barker	Monongahela
414	Sue Croll	Doylestown
415	Peter Wray	Pittsburgh
	Mr. and Mrs. Larry	
416	Dejohn	Reynoldsville
417	Christopher Wright	Philadelphia
418	Robin Butler	Harrisburg
419	Dr. Chad Sethman	Carmichaels
	Dr. and Mrs. Alfred	
420	Burgo	Pittsburgh
421	Daniel Behl	Erdenheim
422	Roger Horn	Clarion
423	Nicole Skeltys	Pittsburgh

424	Paula Capaldo		Bensalem
425	Jason Bohenek		Jessup
	Dr. Ellen		
426	Perchonock		Haverford
	Mr. and Mrs. John		
427	Inserra		Pittsburgh
428	Michael McCullough		Biglerville
429	Reserved		
430	Mary Peterson		Honeybrook
431	Sophia Bender		Corapolis
432	Howard Gittler		Lords Valley
433	Diane Brown		Lewisberry
434	Natalie Burford		Pittsburgh
435	Frank Whalen		Pittston
436	Wendy Futrick		Shillington
	Dr. and Mrs.		
437	Gregory Milbourne		Swarthmore
438	Elizabeth Pugh		Pittsburgh
439	John Kane		Philadelphia
440	Jeff Schmidt	Sierra Club	Harrisburg
441	Stephen Carl		Lansdale
442	Gary Ribovic		Wilcox
443	Richard Stokes		North Wales
444	Dr. Sterling Delano		Blue Bell
445	Joyce Zimmer		Exton
446	Elizabeth Shober		Blue Bell
447	Reserved		
448	William Montgomery		Pottstown
			Mount
449	William Bromyard		Pleasant
450	Brian Evarts		Malvern
451	Dave Leibert		Catasauqua
	Mr. and Mrs. Ronald		
452	Horiszny		Bethlehem
453	Clare Ellinwood		Glenside
454	Dr. Steve Gallop		Glen Mills
455	Kenneth Bickel		Pittsburgh
456	Nicholas Sabetto		Fort Loudon
457	James Vogt		Saylorsburg
458	Eric Wagner		Harleysville
459	Michael LaMark		Pittsburgh
460	Mingyuan Song		Meadville
461	Jeffrey Katrencik		Eighty Four
462	Connie Halls		United
	John and Joann		Washington
463	Flynn		Crossing
464	Gary Smith		Harrisburg
	Mr. and Mrs.		
465	Vladislav Mikijanic		Spring Grove
466	Kristen Toole		Dillsburg
467	Barbara Spiegelberg		Pequea
468	Karen Battaglia		Pittsburgh

469	Dr. Richard Iano	Wyncote
470	Eric Probola	East Pittsburgh
471	Madeline Cabano	Philadelphia
		Roaring
472	Margaret Yaggie	Branch
473	Laura Plunkett	Mars
474	Jamie Harkins	Breinigsville
475	Susanne Whitehead	Jenkintown
476	David Somerville	Southampton
		Hanover
477	Jeanette Godlewski	Township
478	Brian Sesack	Pittsburgh
479	Reserved	
480	Dr. Patrick Hurley	Royersford
481	Dawn Mason	Pottsville
482	John Yuknavage	Pottsville
483	James Kelvington	Erie
484	Welibor Santic	Pittsburgh
485	Andy Weber	Bellefonte
486	Darla Barnshaw	Morton
487	JoAnn Chromicky	Brodheads ville
488	Thomas Hudson	Coatesville
489	Donna Meyers	Stowe
490	Jane Kamel	Drexel Hill
	Mr. and Mrs. Daryl	
491	Lesko	Bethel Park
492	Kim Fackler	Boyertown
493	Milt Weisman	Clearfield
494	Shannon Burke	University Park
495	Michael Mcquown	Philadelphia
496	Joanna Woomer	Tyrone
497	Diane Law	Pittsburgh
498	Jim Black	Philadelphia
	Dr. Christopher	
499	Smith	Birdsboro
500	Melissa Elder	Mifflin
501	John Lawson	Penn Valley
502	Robert Jordan	Cresco
503	Barbara Ostrowski	Erie
504	Reserved	
505	Lukas Rogers	Philadelphia
506	Joseph Werzinski	New Hope
507	Anita Hamilton	Philadelphia
508	Michael Voltz	Exton
509	Whitney Harlow	Harrisburg
	Dr. and Mrs. Richard	
510	Wilson	Wynnewood
511	John Mansky	Lansford
512	Barbara Jones	Pittsburgh
513	Mary Toomey	Mount Wolf
514	Dr. E. Unger	Beth Township

515	Reserved	
516	Ron Kauffman	State Line
517	Sara Brown	Warminster
518	Dr. Michael Sinclair	Allentown
519	Eric & Judith White	Lansdowne
520	Alice Robbins	Chesterbrook
521	Rex Jordan	Olyphant
522	Joshua Zorich	Pittsburgh
523	David Larson	Oxford West Homestead
524	Jamie Fredrick Mr. and Mrs. Craig	
525	Rhoads	Whitehall
526	Emily Mcdonald	Scranton
527	Kishore Jayakumar	McKees Rocks
528	Evelyn Haas	Philadelphia Kennett Square
529	Elsa Lichtenberg Mr. and Ms. Steven	
530	Lehman	Pittsburgh
531	Meredith Stone	Philadelphia
532	Robert Sasser	Pittsburgh
533	David Sublette	Erie
534	Kelley Socling	Jersey Shore
535	Alex Hallowell	Wayne Newtown Square
536	Dr. Jeffrey Bedrick	
537	Ming Pan Dr. Rosemarie	State College
538	Chinni-Edwards	Fleetwood
539	Norman Cook	Wyndmoor
540	Kim Neff	Altoona
541	Paul Herbert	Phoenixville
542	Carson Lane	Pittsburgh
543	Larry Trout	Havertown
544	Beth Dennis	Howard
545	Dr. Paul Rice	Elizabethtown
546	Arati Shah-Yukich	Bethlehem
547	Merian Soro	Philadelphia
548	Dana Williams Mr. and Mrs.	Pen Argyl
549	Dominic Spadaccino	Langhorne Kennett Square
550	Paul Gamble	
551	Dave King	Pen Argyl
552	Frank Sabatini	Exeter
553	Mara Wolfgang	Philadelphia
554	Bob Welch	Dallas
555	John Zorich	Pittsburgh
556	Ai Mahoney	Philadelphia
557	Paul Kalka	Conshohocken
558	Kyle Donnelly	State College

559	Kelly Thompson	Royersford
560	Meredith Donahue	Philadelphia
561	Michele Remenar	Nanticoke
562	Dr. Paul Shane	Philadelphia
563	Pat Dengel	Hummelstown
564	Cynthia Bauer	Pittsburgh
565	William Fridey	Hatfield
566	Lauren Raheja	Brooklyn, NY
567	Terry Aunkst	Turbotville
		Fort
568	Jeremy Stork	Washington
569	Elsa Peterson	Doylestown
570	Chuck Oatman	Drumore
571	Mary Legge	Flourtown
572	Kimberly Seger	Kittanning
		Pennsylvania
573	Andrew Mckinnon	Furnace
574	Dr. Lisa Allarde	Green Lane
575	Reserved	
576	Khrys Myrddin	Pittsburgh
577	Thomas Moore	Philadelphia
578	Kate Hollos	Strafford
579	Timothy Cimino	Pittsburgh
	Lisa and Steve	
580	Schnell	Kutztown
581	Patricia Libengood	Erie
582	Samuel Rothermel	Elizabethtown
583	Rosemary Delpino	Butler
584	Polly Bech	Swarthmore
585	Eileen O'Neill	Philadelphia
586	Van Knox	Lancaster
587	Meredith Withelder	Morton
588	Adrienne Puza	Harrisburg
589	Judy Mcauley	Sewickley
590	Jeff Nutkowitz	Trevose
591	Charlotte Turner	Philadelphia
	Holly & Paul	
592	Williams	Lancaster
593	Kurt Fisher	Wyndmoore
594	Robert Smith	Wexford
595	Charles Dorsaneo	Philadelphia
596	Scott Whittaker	Carbondale
597	Edward Higgins	Bensalem
598	Kate Jamal	Philadelphia
599	David Madden	Shamokin
600	Gina Williams	Aston
601	Jeanne Smith	Mansfield
602	Reserved	
603	Tina Thomas	Catasauqua
604	Janelle Jesikiewicz	Pittstown
605	Mr. & Mrs. Dianne	Charleroi

	Shepard	
606	Shannon Cummins	New Castle Upper
607	Travis Harvey	Chichester
608	Mrs. B. Rae	Hellertown
609	Carol Thompson	South Park Bear Creek Township
610	Elaine Tomko	Pittsburgh
611	Naomi Swerdlow	Weatherly
612	Abigail Myers	Philadelphia
613	Martha Kirby	King of Prussia
614	Walter Ebmeyer	Fountain Hill
615	Michelle Sheehan	Rockledge
616	Brad Hirschhorn	Eighty Four
617	Kenneth Yonek	Glenmoore
618	Joan Knudson	Lansdale
619	Doris Fiorentino	Philadelphia
620	Mary Corbett	Devon
621	Dean Chia	Schwenksville
622	Linda O'Neill	State College New
623	Henry Thomas	Providence
624	Fawn Hanna	Philadelphia
625	Jerry Fisher	Pittsburgh
626	Mary Hartley	Collegeville
627	Amelia Garrett	Philadelphia
628	Maria Kydonieus	Kingston
629	Rita Craze	Pittsburgh
630	Tom McCartney	Dublin
631	Bonnie Reeves Dr. & Mrs. R.	
632	Leonard	Girard
633	Elaine Lopata	Pittsburgh
634	Rebecca Condict	Elkins Park
635	Sandy Kemp Mr. & Mrs. Lois	New Oxford
636	Knepp	Bigler
637	Cynthia Maize	Eighty Four
638	Michael Zuckerman	Philadelphia
639	Andrea Carman	Douglassville
640	Robert Donlen	Levittown
		Arcadia
641	Kelsey Eggert	University
642	Winona Wise	Glenside
643	Charles Leiden Mr. & Mrs. Carol	Philadelphia Altoona
644	Gelfand	Pittsburgh
645	Susan Duncan	Lebanon
646	Judith Bohler	Ephrata
647	David Sorkin	Philadelphia
648	Dr. Paula Michal- Johnson	Fountain Hill

649	Edward Rafferty	Levittown
650	Elena Rippel	Pittsburgh
651	Christopher Croft	Brookhaven
652	Mary Davidson	Pittsburgh
		Upper
653	Sarah Selph	Chichester
654	Leigh Desantis	Philadelphia
655	Ned Leight	Souderton
656	Michael Wagner	Harrisburg
657	Courtney Davis	Macungie
658	Daniel Isenberg	Whitehall
659	Catherine Anderson	Elizabeth
660	G. DeAnnuntis	Philadelphia
661	Rose Cripps	Slippery Rock
662	David Adams	Harmony
663	Sarah Kolb	Philadelphia
664	Mrs. E. Smith	Oakdale
665	Massimo Paris	Broomall
666	Carol Paris	Broomall
667	Rosemary Hoff	Monroeville
668	Frances Sawyer	Reading
669	Kathryn Feeney	Philadelphia
670	Wayne Almond	Morrisville
671	Rebecca Glenn	Harrisburg
672	Natasha Bloom	Waynesboro
673	Samantha Meers	Birdsboro
674	Keely McCaskie	Pittsburgh
675	Jeremy Styers	Lock Haven
676	Suzanne Holler	Philadelphia
677	Gene Hillegass	Reading
678	Katherine Oxenreiter	Pittsburgh
679	Seneca Green	Lititz
680	Andrea Groppe	Wayne
681	Daniel Shertzer	Lancaster
682	Lawrence Pearson	Pittsburgh
683	Helaine Greenberg	Philadelphia
684	Bryan Richard	Morton
685	Justina Carroll	Uniontown
686	Rebecca Lawson	Mechanicsburg
687	Susan Thompson	Philadelphia
688	Michael Lawrence	Harrison City
689	Linda Partridge	Fleetwood
690	David LaVerne	Dickson City
691	Barbara Duffy	Wyncote
692	Deborah Gouge	Pittsburgh
693	Katherine Jueds	Philadelphia
694	Charlene Rush	Allison Park
695	Lois Kendall	Ft. Washington
696	Mary Aull	Pittsburgh
697	Thomas Brenner	Hollidaysburg
698	Mary Finegold	Wallingford

699	E. Buzzell	Dubois
700	Mary Barczyk	Ruffs Dale
701	John Hallenburg	North East
702	Lori Cooper-Ott	York
703	Jason Wittenbrader	Lake Ariel
704	Dr. Alicia Long	Pittsburgh
705	Gerald Mistal	Bethlehem
706	Randy Moore	Beaver
707	David Moore	Morton
708	Sandra Hurst	Narvon
709	Michael Miller	Philadelphia
710	Robert Pope	Audubon
	Mr. and Mrs. Ron	
711	Simasek	McAdoo
712	Anita Cunningham	East Berlin
713	Jennifer Danner	Nazareth
714	Daniel Karaczun	Pittsburgh
715	Jean Morgano	Nazareth
716	Henry Pyatt	Reeders
717	Sioux Adams	Bethlehem
718	Daniel Greider	Lancaster
		Cranberry
719	Jean Sweitzer	Township
720	Mary Ann Kahl	Uniontown
721	Kathryn Thompson	Philadelphia
722	Allyson Hamm	Allentown
723	Miriam Kiss	Whitehall
724	Amy Guskin	Malvern
725	Charles Yankel	Bridgeville
	Mark and Eileen F.	
726	Barbash	Philadelphia
727	Alexis Chontos	West Mifflin
728	Joan Sasso	Pittsburgh
729	Paul Smith	Downingtown
730	Judith Springer	Exton
731	Malcolm Seaholm	Pittsburgh
732	Michael Leeling	Souderton
733	Marion Schwartz	State College
734	Holly Peck	Pittsburgh
	Mr. and Mrs.	
735	Michael Peale	Aston
736	Theresa Knapp	Towanda
737	James Fitch	Pittsburgh
738	Gloria Puel	Carnegie
739	Fay Gitman	Pottsville
740	Eva Monheim	Cheltenham
741	Alyson Giantisco	Philadelphia
742	Ivan Russell	Carnegie
743	Tyler Jackson	State College
744	Smita Wagh	Bethlehem
745	Frank Bartell	Philadelphia

746	Mr. and Mrs. John Bush	Malvern
747	Dr. Sandi & Peter Behrens	Pittsburgh
748	Kathy Guentner Kathy Lynn	Glenshaw
749	Dabanian	Sellersville
750	Jason Palo	Glen Mills
751	Kate Ritter	Tobyhanna
752	Mark Lazaran Dr. and Mrs. Gary	East Millsboro
753	Halstead	Pottstown
754	Troy Schreiber	Millersburg
755	Robert Rhodes	Mercersburg
756	Casey McCarthy	Phoenixville
757	Garry Doll	Williamsport
758	Greg Manning	Newtown
759	Laura Brennan	Philadelphia
760	Paloma Vila	Elkins Park
761	Andrea Leshak	State College
762	Rosemary Hennessy Georgann	Pittsburgh New
763	Kovacovsky	Bethlehem
764	Hazel Pelletreau	Lansdowne
765	Andrew Wilson	Philadelphia
766	Patricia Fiedler	Levittown
767	Carole Ostfeld	Allentown
768	Barbara Osada	Philadelphia
769	Clifford Hritz	Philadelphia
770	Donald Leonard	Media
771	Michelle Miller	Ephrata
772	Ellen Butkus	Russell
773	Dr. David Kline	Holland
774	Christa Cooke	Hickory
775	Dawn Dippre	Scranton
776	Lance Arnold	Newport
777	Kathleen Schmick	Wallingford
778	Lucinda Boudreau	Philadelphia
779	David Dunkleberger	Doylestown
780	Sarah Cutler	Orrtanna
781	C. Dougherty	Media
782	Richard Eddy	Reading
783	Mr. & Mrs. W. Bible	Abbottstown
784	Nancy Cohn	Ardmore
785	George Geiges	Newfoundland
786	Idyle Nestler	New Tripoli
787	Mindi Baurer	Lansdale
788	Mike Bengston	Easton
789	John Higgins	White Haven Plymouth
790	Sally Bishop	Meeting
791	Sally McDermott	Uniontown

792	Yuri Romaniuk	Narberth
793	Joanne Kosloski Mr. & Mrs. Stephen	Wernersville
794	Dieringer	Parkesburg
795	Beverly Fine	Johnstown
796	Helen Walker Mr. & Mrs. Stan	Gwynedd
797	Siegel	West Newton
798	Jean Wiant	Philipsburg
799	Theresa Barton	Cheswick
800	Marty Kelly	Shenandoah
801	Carol Troisi	Unityville
802	Jon Levin	Macungie
803	Mark Gormel	Landenberg
804	Lester Care	Birdsboro
805	Thomas Wheeler	South Abington Township
806	Sherri Fryer	Clymer
807	Randolph Eck	Temple
808	Susan Horiszny	Bethlehem
809	Barbara Gibson	Philadelphia
810	Catherine Fusco	Bushkill
811	Carolyn Auwaerter	Malvern
812	Kim McClure	Lancaster
813	Jean Kozel	Eagleville
814	Teana Van Meter	Stroudsburg
815	Ben Breuning	West Grove
816	Susanne Shaffer	Spring Grove Moon Township
817	Kathy Booth	Norristown
818	Steve Gilbert	Meadville
819	Warren Getchell	New Britain
820	Elizabeth Pankoe	Saylorsburg
821	Tonia O'Connor Mr. and Mrs.	Wayne
822	Charles Frost	Pittsburgh
823	Heidi Pandolfi	Greenville
824	Stella Barrett	Jamison
825	Connie Prundeanu	Plymouth Meeting
826	John Cairns	Dubois
827	Jason Gulvas	Myerstown
828	Richard Firestine	Hershey
829	Nicole Caruso Dr. and Mrs. Michael	Allentown
830	Benning	Garnet Valley
831	Judith Frank	Allentown
832	Kristen Bryant	West Chester
833	Glenn Lyons Mr. and Mrs. Christopher	
834	Seymour	Pittsburgh

835	Estelle Maisel	Philadelphia
836	Laura Ray	Bethlehem
837	Lynn Stehr	Bridgeville
838	Chloe Mekinc	Philadelphia
839	Eela Thakrar	Bethlehem
840	John Antonio	Wellsboro
841	Garth Dellinger	Pittsburgh
842	Debra Wontor	Lords Valley
843	Vivienne Spector	Jenkintown
844	David Danner	Freeport
845	Deborah Hansen	Swarthmore
846	Cass Peluso	Williamsport
847	Julia Stone	Birchrunville
848	Monica Held	Washington
849	Kimm Tynan	Philadelphia
850	John & Karol Patsy	Clinton
851	Roy Laplante	Wynnewood
852	Linda Blythe	Philadelphia
853	Tim Hreha	Pittsburgh
854	Ellen Dietrich	Lehighton
855	Marie Holland	Chadds Ford
856	Timothy Shaw	Nanticoke
	David and Lani	
857	Frank	Berwyn
858	George Adams	Ambler
859	Christine Sandvik	Collegeville
860	Daryl Rice	Perkasie
		Greenfield
861	Elinor Daley	Township
862	Robert Coon	Cochranon
863	Mrs. Vincent Young	Little Meadows
864	Paris Ligi	Jessup
865	Robert Drummey	Collegeville
866	David Dagney	Philadelphia
867	Corinne Mayland	Lansdale
868	Thomas Cronin	Philadelphia
	Bob and Carmen	
869	Riggs	Bethlehem
870	Linda Leghart	Jacobs Creek
871	Edward Thornton	Swarthmore
872	Brenda DePersico	West Chester
873	Dr. Michael Soso	Pittsburgh
874	Darwin Aurand	Harrisburg
875	Stephanie Reed	Oley
876	Susan Markowitz	Lahaska
877	Linda Huber	Hanover
	Lawrence	
878	Zappaterrini	Malvern
879	Elizabeth Brooking	Unionville
		Washington,
880	Lisa Widawsky	DC

881	Anna Mates	Pittsburgh
882	Katherine Hackney	Pittsburgh
883	Robert McClellan	Bryn Mawr
884	Gail Sieg	Pittsburgh
885	Dr. Rise VanFleet	Boiling Springs
886	Carol Silverman	Elkins Park
887	Ruth Woodcock	York
888	Jay Erb	Pottstown
	Dr. and Mrs. Bruce	
889	Rockwood	Bloomsburg
		New
890	Ron Slabe	Kensington
891	Diane Grandstrom	Reading
892	Alvin Leonard	Ebensburg
893	Dr. Joann Seaver	Philadelphia
		Dingmans
894	Rachel Chaput	Ferry
895	Barbara Rosenzweig	Southampton
896	Joan Schoff	Allison Park
897	Dr. Maren Cooke	Pittsburgh
898	Laurie Goodrich	Orwigsburg
899	James Martin	Camp Hill
900	Elizabeth Black	Pittsburgh
901	Larry Menkes	Warminster
902	Daniel Gallagher	Ephrata
903	Lisa Brock	Wyncote
904	Laurie Wolfe	Lansdowne
905	Reserved	
906	Judith Pennington	Bath
907	Don Baun	Pittsburgh
	James & Judith	
908	Fordham	Coburn
	Mr. and Mrs. David	
909	Cutler	Holland
910	Trish Swanson	Valencia
911	Clyde Putnam	Philadelphia
912	Jim Lynch	Philadelphia
913	Brian Leyde	State College
914	Andi New	Blue Bell
915	Dr. Barbara Grover	Pittsburgh
916	Bernard Martin	Dayton
917	Theresa Reiff	Norristown
918	Steve Sears	Hatboro
919	Amanda Barker	Camp Hill
920	Dr. Robert Adams	Clayton, NC
921	Michael Ryan	Philadelphia
922	Dr. Cecil Ault	Indiana
923	Anna McCartney	North East
924	Christopher Ray	Swarthmore
925	Donna Haney	Bethlehem
926	Gary Swartz	

927	Robert Gadinski		Ashland
		Piney Creek Limited Partnership	
928	Dennis Finotti		
929	C. L. "Skip" Missimer	Glatfelter	Spring Grove
930	Joseph Dawson		McDonald
	Tom and Barb		
931	Martincic		
932	Jeff Hironimus		McDonald
933	Reserved		
934	Christiana Dietzen		Philadelphia
		Executive Director	
935	Delores Columbus		Ebensburg
936	Anita Hanrahan		Imperial
937	Matthew Ziemniak		Oakdale
938	Jo Post		
939	Wayne Anderson		Oakdale
940	Keely McCaskie		
941	Ricky Reedy		
942	Gary Swartz		
943	Lee Gorny Erik, Kim, Vaughn, and Adeline		
944	Schutzman		McDonald
		Northampton Generating Company, L..P.	
945	Daniel Traynor		Northampton
946	Cathy Lodge		Bulger
947	Robert Smith		
		Pennsylvania Coal Association	
948	Josie Gaskey		Harrisburg
		Lehigh Engineering, LLC	
949	Randy Lindenmuth		Pottsville
		Department of Environmental Engineering and Earth Sciences	
950	Bruce Payne, PhD		Wilkes-Barre
951	Julie Alwine		Imperial
952	Randy Alwine		Imperial
		Center for Coalfield Justice	
953	Raina Rippel		Washington
		RNS Services, Inc.	
954	Richard Taylor		Blossburg
955	Reserved		
		Environmental Integrity Project	
956	Lisa Graves-Marcucci		Jefferson Hills
			Indianapolis, IN
957	Sam Flenner		

958	Richard Shaffer	Scrubgrass Generating Co. L.P. The Pennsylvania State	
959	Steve Weyandt, P.E.	University	University Park
960	Jeff McNelly	ARIPPA AES Beaver Valley, AES Thames, and AES Westover	Camp Hill
961	Chris Wentlent		
962	Glenn Amey, P.G.		Allentown
963	Stephen Dixon	RRI Energy, Inc.	Canonsburg
964	Sharon Barbour		Harrisburg
965	Duane Feagley		
966	William Gorton, III		
967	Stephanie Wissman	PA Chamber of Business and Industry Allegheny Group, Sierra Club	Harrisburg
968	Claudia Kirkpatrick	Group Against Smog and Pollution, Inc. North Fayette Township	
969	Joe Osborne		Pittsburgh
970	Robert Grimm		
971	Abigail Dillen	Earthjustice	New York, NY
972	Thomas Schmaltz, Ph.D.	Headwaters Incorporated	Bogart, GA
973	Pauline Williams		
974	Ronald Bennett		Hastings
975	Paul and Carol Reed		Oil City
976	Michael Whitting		Kennerdell
977	Myrtle Reed		Oil City
978	Virginia Stover		Oil City
979	Mary and Robert Boyles		Oil City
980	Robert and Sally Stover		Oil City
981	Evan Heeter		Parker
982	Steve Reed		Oil City
983	Charles Mahle		Strattanville
984	James Snow		Emlenton
985	Jonas Pipher		Parker
986	Jeff Irwin		Cranberry
987	David Peters		Sligo
988	John Harknes		Knox
989	James Welton		Karns City
990	Ken Yelland		Butler
991	Randy Miller		Seneca

992	Karen Pirie	Knox
993	Robert Martin	Franklin
994	Blair Bundy	Emlenton
995	Jamie Mahle	Strattanville
996	Michael Summerville	Shippenville
997	Thomas Bell	Foxburg
998	Justin Reinard	Kennerdell
999	Jack Egley	Grove City
1000	Emily Egley	Grove City
1001	Robert Braden	Knox
1002	Dennis Adams	Knox
1003	Steve Hines	Kennerdell
	Stephen	
1004	Schwabenbauer	Knox
1005	Robert Griswold	Franklin
1006	Steve Sumner	Oil City
1007	Jeff Hindman	Grove City
1008	Michael Tacey	Parker
1009	Floyd Simmons	Knox
1010	Robert McCauley	Oil City
1011	Thomas Fairley	Emlenton
1012	Greg Ort	Emlenton
1013	Jeff Young	Oil City
1014	Aaron Lemmon	Emlenton
1015	Frank Lominski	Boyers
1016	Edgar Bailey	Parker
1017	Ryan Witzel	Knox
1018	Mike Barkley	Polk
1019	Edward Reeher	Kennerdell
1020	Bryan Butler	Emlenton
1021	Albert Renwick	Bruin
1022	Walter Best	Strattanville
1023	Billy Gilbert	Oil City
1024	Mr. Guff	St. Petersburg
1025	Brian Campbell	Knox
1026	Rodney Wise	Oil City
1027	George Gurtwin	Summerville
1028	David Linamen	Turkey City
1029	Diana O'Neil	Seneca
1030	Christopher Kapp	Oil City
1031	Mike Lauer	Fryburg
	William	
1032	Allmendinger	Knox
1033	James Rhodes	Sandy Lake
1034	Richard Day	Slippery Rock
1035	Samuel Bucholz	Knox
1036	Kenneth Stalh	Boyers
1037	G. Flinspach	Oil City
1038	Jason McCorkle	Knox
1039	Joni Saylor	Callensburg
1040	Viola Fulmer	Callensburg

1041	Charles Runyan		Callensburg
1042	Charlotte Runyan		Callensburg
	Debra		
1043	Schwabenbauer		Knox
1044	Ralph Cattas		
1045	Joseph Carr		
1046	Richard Dunn		
		Savage	
1047	Angie Gyorko	Service, Inc.	Morgantown, WV
1048	Jim Ruby		
1049	James Gile		
1050	David Schmidt		
1051	Bud Cobb, Sr.		
1052	Thomas Eruin		
1053	Mike Lee		
1054	James Louis		
1055	Bill Reily		
1056	Max Scott		
1057	Heather Harkmess		Knox
1058	John Geary, Jr.		
1059	Vern Alden		Cranberry
1060	Matthew Wholey		Pittsburgh
		Pennsylvania	
		Anthracite	
		Council	
1061	Duane Feagley		Pottsville
1062	Ruth Alden		Cranberry
1063	John Finet		
1064	Sherry Reed		Oil City
1065	Gerald Wetzel		Knox
1066	Michael Chicka		Saltsburg
1067	Mable Seger		Clarksburg
1068	Jerry Swartz		Saltsburg
1069	Melvin Way		Shippenville
1070	Sherry Wonderly		Leeper
1071	Brenda Chicka		Saltsburg
1072	Peggy Carnahan		Saltsburg
1073	Thomas Stover		Fryburg
1074	W. Ray Bailey, Sr.		Parker
1075	Joseph Bechtel		Eau Claire
1076	Joan Peters		Sligo
1077	Rose Stover		Fryburg
1078	Keith Kline		Tionesta
1079	Wilda Cotton		Franklin
1080	Loraine Hepler		Sligo
1081	Daniel Peters		Sligo
1082	Greg Berteotti		Emlenton
1083	Karen Lauer		Fryburg
1084	Sheila Lauer		Clarion
1085	Dakota Lauer		Clarion
1086	Michael Peters		Rimersburg
1087	Kimberly Butler		Emlenton

1088	Tim Fulmer		Callensburg
1089	Peg Wetzel		Knox
1090	Terry Stover		Fryburg
1091	Craig Roberts	Borough of	
	Jennifer and David	Bangor	Bangor
1092	Detar		Fryburg
		Babst Calland	
		Clements	
1093	April Milburn-Knizner	Zomnir	Pittsburgh
1094	Robert Lake		Coraopolis
		Electric Power	
		Generation	
1095	Steve Dixon	Association	
		Scrubgrass	
		Generating	
1096	Richard Shaffer	Co.	Kennerdell
		Group Against	
		Smong and	
1097	Joe Osborne	Pollution	Pittsburgh
		US	
		Environmental	
		Research	
1098	John Foreman	Service	Altoona
1099	Randy Francisco	Sierra Club	Pittsburgh
		Savage	
		Services	
1100	Jeff Chesler	Corporation	
		AES Beaver	
		Valley, LLC	
1101	Russ Forsythe		Monaca
1102	Rachel Martin		Pittsburgh
		Pigeon Creek	
1103	Phil Coleman	Poets	
1104	Dennis Simmers		Ebensburg
		Coal Valley,	
		LLC	
1105	Van Plocus	Ebensburg	Punxsurtawney
		Power	
1106	Gary Anderson	Company	Ebensburg
		US	
		Environmental	
		Research	
1107	John Foreman	Service	Altoona
1108	Karen Giles		Portage
		Cambria	
		County	
		Conservation	
1109	Robert Piper, Jr.	District	Ebensburg
1110	Etta Albright		Cresson
1111	Shawn Simmers		Ebensburg
1112	Arthur Rose		State College
		PPL	
1113	Larry LaBuz	Generation	Allentown
		Lehigh	
1114	Randy Lindenmuth	Engineering,	Pottsville

1115	Thomas Brown	LLC Northampton Generating Co	Northampton
1116	Michael Sinclair		Allentown
1117	Doug Biden	Electric Power Generation Association	Harrisburg
1118	Reserved		
1119	Wendy Taylor		Camp Hill
1120	Kim Kaufman	Independent Regulatory Review Commission United States Department of the Interior, Fish and Wildlife Service	Harrisburg
1121	Cindy Tibbot		State College

Acronyms

Board or EQB – Environmental Quality Board
CFB – Circulating Fluidized Bed
DEP – Department of Environmental Protection
HSCA – Hazardous Sites Cleanup Act
NAS – National Academy of Sciences
SHS – Statewide Health Standard
SMCRA - Surface Mine Conservation and Reclamation Act
SWMA – Solid Waste Management Act

General Comments

1. Comment:

The commentators support the continued beneficial use of coal ash in PA without imposing additional requirements and regulations. With all the reclamation projects that have been completed in PA, there has not been a single problem. There appears to be no deficiencies in the existing regulations as they stand. (2, 926, 942, 973-1059, 1062-1090, 1092, 1109, 1115)

The PA Chamber of Business and Industry (PCBI) requests the Board and DEP to carefully consider whether the universe of proposed regulatory changes are necessary in the first instance and, if warranted by deficiencies in the existing regulations, are appropriately and narrowly tailored to address those deficiencies in the least intrusive manner that is practical. The evolutionary process with respect to the beneficial use of

coal ash would appear to warrant a light touch at this juncture given the fact that the existing program has a proven positive track record. (967)

Response:

The proposed regulations contain key provisions of Department guidance and adopt recommendations from the National Academy of Sciences 2006 report, which can be located at the following link: http://www.nap.edu/catalog.php?record_id=11592#toc. During the process of amending the Department's technical guidance, "Certification Guidelines for the Chemical and Physical Properties of Coal Ash Beneficially Used at Mines" (Document Number 563-2112-224) and "Mine Site Approval for the Beneficial Use of Coal Ash" (Document Number 563-2112-225), the most frequent public comment was that the content of the technical guidance should be placed in regulations. DEP agrees.

The key provisions and recommendations establish operating requirements for the beneficial use of coal ash, certification guidelines for the beneficial use of coal ash at active and abandoned mine sites, water quality monitoring and storage requirements for coal ash stored in piles and surface impoundments. These provisions clarify the procedures and standards that apply to coal ash and that will be enforced by DEP.

2. Comment:

Clearly, the proposed regulations are reflective of the findings and recommendations contained in the NAS report. Many of the safeguards identified in the NAS report already exist in the current regulations. Rather than a dramatic overhaul, the proposed changes to PA's beneficial program require only targeted "upgrades." We support those proposed regulations in Chapter 290 that are designed to address the NAS recommendations. (963, 1093, 1095)

Response:

Many of the recommended standards from the NAS report have been incorporated into the ash program in Pennsylvania through the guidance documents. This effort is intended to implement the requirements through regulations.

3. Comment:

Is it possible to separate coal ash from fluidized bed ash? The composition of the fluidized bed ash is completely different from normal boiler ash. (3)

Response:

The definition of "coal ash" in the Solid Waste Management Act, as amended, does not distinguish between these types of coal ash.

4. Comment:

Under proposed Chapter 290, no provisions for a period are provided to the requirements for current sites where coal ash is actively being stored or used prior to adoption of these regulations. There is no indication as to the effective date on which the new requirements in these regulations are applicable. (4, 961, 963, 966, 972, 1120)

Response:

Interim requirements have been added in 290.307 and 290.415 for water quality monitoring and storage requirements. Many of the new requirements in these regulations, such as coal ash certification, have already been implemented under Departmental policies and transition provisions in these areas are considered unnecessary. In other areas, the Department will need to use its discretion to make decisions on a case-by-case basis how to transition specific requirements.

5. Comment:

We recommend “grandfathering” such that the new requirements do not apply to previously approved projects and ongoing projects for a period of two years after the effective date of these regulations. (962)

Response:

Interim requirements have been added in 290.307 and 290.415 for water quality monitoring and storage requirements. Many of the new requirements in these regulations, such as coal ash certification, have already been implemented under Departmental policies and transition provisions in these areas are considered unnecessary. In other areas, the Department will need to use its discretion to make decisions on a case-by-case basis how to transition specific requirements.

6. Comment:

We oppose the regulation of fly ash into PA mines. (931)

Response:

The opposition is acknowledged.

7. Comment:

Coal ash is filled with toxic chemicals and heavy metals. PA is the third largest producer of this waste. We shouldn’t allow this toxic substance anywhere near our drinking water. Coal combustion waste is contaminating water sources across America and in PA. (5-90, 92-123, 125-251, 253-302, 304-338, 340-428, 430-446, 448-478, 480-503, 505-514, 516-574, 576-601, 603-904, 906-925)

Response:

Coal ash used for beneficial use must meet stringent physical and chemical requirements for the intended uses. The final rulemaking includes setback distances from beneficial use sites and storage sites to drinking water supplies that are protective of human use. The final rulemaking also includes water quality monitoring requirements to gauge the effects of the placement and use of coal ash. The Department considers the leachate limits and other requirements in Chapter 290 to be protective of human health and the environment, including drinking water sources

8. Comment:

This toxic coal ash should be sealed with the use of composite liners and guidelines that ensure isolation from groundwater. (5-90, 92-123, 125-251, 253-302, 304-338, 340-428, 430-446, 448-478, 480-503, 505-514, 516-574, 576-601, 603-904, 906-925, 941, 1102)

Response:

Modeling used to develop the leachate standards in these regulations is designed to protect the groundwater without the need of liners. The regulations generally require an eight-foot separation of the coal ash from groundwater except where the coal ash is specifically used as a cement-like material for mine subsidence control, mine fire control or mine sealing.

9. Comment:

The commentator compared ash from the TVA Kingston site and spill with Pennsylvania generated ash and sites, pointing out ash from PA is collectively worse. (927)

Response:

The Department does not consider this comparative analysis to be relevant to the proposed regulations. The ash proposed for beneficial use in this regulation is newly generated ash often associated with cleaner burning technologies. The request to bring TVA Kingston ash to Pennsylvania was denied because that material would not pass the Department's certification standards or satisfy the regulations.

10. Comment:

The proposed regulations fall short because nearly all of the requirements listed can be waived by DEP at its discretion, without any showing why the waiver will not compromise adequate protection of human health and the environment. (5-90, 92-123, 125-251, 253-302, 304-338, 340-428, 430-446, 448-478, 480-503, 505-514, 516-574, 576-601, 603-904, 906-925, 930, 932, 935, 936-940, 943, 946, 947, 951-953, 970, 971, 1060, 1094, 1102, 1119)

The primary purpose of placing the guidance document provisions into a regulatory framework is to create enforceable, nondiscretionary requirements. This purpose is defeated by the numerous provisions reserving discretion for DEP to diverge from these regulatory requirements, often without even describing the criteria or factors to be considered in allowing a requirement to be waived. (969)

Response:

To clarify the Department's intent, the regulations have been amended to require minimum requirements for the testing and monitoring protocols, but allows the Department to increase those requirements where warranted.

11. Comment:

The public should be permitted to participate in the entire permitting process. (5-90, 92-123, 125-251, 253-302, 304-338, 340-428, 430-446, 448-478, 480-503, 505-514, 516-574, 576-601, 603-904, 906-925)

Response:

Permitted mining activities require public notice and allow for public participation. These final-form regulations require public notification through newspaper advertisements for projects involving placement of more than 10,000 tons of coal ash per acre or more than 100,000 tons of coal ash in total as structural fill at mining activity sites and at abandoned coal mine sites. In addition to permitted mining activities, there are other public notification requirements for other beneficial uses of coal ash.

12. Comment:

Any company that cannot obtain the requisite financial assurances to cover remediation of potential environmental impacts should not be allowed to engage in the risky business of minefilling. The rules fail to include any financial assurance requirements in light of the known risks associated with ash placement. Under the Resource Conservation and Recovery Act ("RCRA"), hazardous waste disposal facilities are required to provide proof that they will have sufficient funds to pay for the clean up, closure, and post-closure care of their facilities. Companies that use mines as disposal facilities for coal ash should be subject to similar requirements. Before issuing any beneficial use certification, companies should be required to comply with upfront bonding requirements that are set at an amount sufficient to cover the cost of long-term monitoring and potential remediation costs. (971)

A new section requiring financial assurance in the form of bonds or similar instruments should be included in these regulations requiring financial assurance to be posted by operators before permit issuance and maintained throughout required monitoring at a site in amounts sufficient to monitor and abate pollution from the ash. Such assurance should

not be released until monitoring has verified that ground waters and surface waters have not been contaminated and are not likely to be contaminated by that placement. (5-90, 92-123, 125-251, 253-302, 304-338, 340-428, 430-446, 448-478, 480-503, 505-514, 516-574, 576-601, 603-904, 906-925, 930, 932, 935, 938-940, 943, 946, 947, 951-953, 956, 969, 970, 1060, 1094, 1108)

Response:

The Department does not believe that beneficially using ash for mine reclamation is risky business, that coal ash is hazardous waste or that the use of certified coal ash for mine reclamation will result in pollution and necessitate remediation. Coal ash has been used for mine reclamation within the Commonwealth for more than 20 years without any adverse impacts to the environment. Accordingly, there has not been a need to secure additional financial means at a coal ash beneficial use site. The known risks of ash beneficial use are addressed through implementation of procedures required in the regulations and permit decisions-making. In addition, the Department has increased responsibility of the coal ash generators through requirements in the certification section in § 290.201. Financial assurances are required for mining permits.

13. Comment:

IRRC notes that several commentators believe bonds should be required to address long-term water quality problems and to protect taxpayers from potentially expensive cleanup costs. The Board should explain how the regulation adequately protects PA from any long-term financial obligations if the placement of coal ash causes water quality problems. (1120)

Response:

Certification standards and operating requirements are designed to be protective of public health and safety and the environment. In the unlikely event that water quality problems would occur, both the generators and the site operators may be held liable.

Financial assurances are required for mining permits. For permitted coal mine sites, the Department has the authority under the mining laws to require an increase in bonding to cover remedial costs if conditions warrant.

14. Comment:

Financial assurance should not be released until monitoring results verify that no contamination to groundwater or surface water has occurred or is likely to occur. (1102)

Response:

For permitted coal mine sites, the Department has the authority under the mining laws to extend financial assurance beyond ten years if conditions warrant.

15. Comment:

The commentator does not believe that the ash being beneficially used is actually coal ash. In 1986, the Department of Environmental Resources Secretary said that this is the same stuff that comes out of people's stokers. You cannot burn cement kiln dust, carbonaceous shale, or lime kiln dust in your stoker. (927)

Response:

This rulemaking regulates the beneficial use of coal ash, which is defined in Chapter 290.

16. Comment:

The project that is used to justify the dumping of all these wastes in PA goes back to Bark Camp. I could not find one map showing a potentiometric surface of water in that area, the groundwater. Based on the data they do not have one downgradient well based on structural geology and mining in the area. Is this what we are basing this regulation on? (927)

Response:

Results from the studies at Bark Camp were not used as a basis for this rulemaking.

17. Comment:

In the last 30 years, coal users have developed many beneficial uses for coal ash instead of simply disposing of it in landfills. Coal ash is now considered a valuable commodity. The proposed rulemaking regarding beneficial use of coal ash is an important step in maintaining the use of coal and the beneficial use of coal ash. (929)

PCBI supports the efforts of DEP and the Board to ensure coal ash can be beneficially used in a broad array of ways. (967)

Response:

The Department acknowledges the supportive comment.

18. Comment:

The following terms are not specific and create difficulty in understanding the guidelines: "Conventional alkaline materials," "quality standards," "change in fuel source" and "stand-alone alkaline additive." (935)

Response:

This comment pertains to technical guidance documents and not these regulations. These terms are not used in these regulations.

19. Comment:

The guidelines provide host and municipalities the opportunity to review and comment on the possible beneficial use of coal ash. A period of not more than 30 days should be included so that the process keeps moving forward. (935)

Response:

This comment pertains to technical guidance documents and not these regulations. Public comment periods are part of the permitting process for mining activities and are not specified in these regulations.

20. Comment:

Please consider the people you are going to affect and protect them with more stringent regulation. (936, 937)

Response:

These regulations are being enacted to protect human health and safety and the environment.

21. Comment:

We need to have real, enforced regulations of hazardous waste. (941)

Response:

The chemical composition of coal ash that is beneficially used in PA is significantly well below the criteria for materials that are classified as hazardous waste.

22. Comment:

Regular checks on water quality in the area and a course of action for compromised areas are necessary for the safety of the citizens. (941)

Response:

These regulations increase the frequency and duration of water quality monitoring at coal ash placement sites and expand the list of constituents required to be monitored. They also contain provisions for assessment and abatement.

23. Comment:

I hope the Board will vote against this proposition and for safer restrictions. (944)

Response:

The comment has been noted.

24. Comment:

I believe the responsibility for ash disposal and utilization sites and any environmental impacts they may cause should be a permanent obligation of the site owners/operators. (950)

Response:

Site owners and operators must comply with the provisions of Chapter 290.

25. Comment:

If the proposed regulations eventually stand without addressing this commentator's issues, then the regulations should at least require fully developed emergency response and environmental corrective action plans to address future impacts. (950)

Response:

Emergency response plans are designed to cover incidents that require swift action, such as fires or spills. The required water quality monitoring ensures that problems can be identified and addressed before they become emergencies.

Environmental corrective action plans are developed after the nature of the problem is known. The regulations in § 290.305 require development of abatement plans in the event water quality degradation occurs.

26. Comment:

We support those proposed regulations that are designed to address the concerns in the NAS report and, where necessary, strengthen the existing beneficial use regulations. However, this must be done in a manner that recognizes the specific characteristics of the ash to be beneficially used, how the ash is intended to be used, and the specific characteristics of the site where the material is to be placed. Discrete changes in the chemical characterization of the coal ash or in water quality cannot serve as the basis for making operational or regulatory changes. (691, 963, 1117)

Such decisions must be based on statistically significant changes that are supported by clear trends. (961)

Response:

The final-form regulations are compatible with statistical data treatment of trends and recognize specific ash characteristics, intended ash use and site characteristics.

27. Comment:

Since this chapter of the residual waste regulations is being modified on a separate track from the other solid waste regulations, we are concerned that there are references in the proposed regulations to other chapters or requirements of the solid waste regulations that could be modified or developed at a future date. (961, 963)

Response:

All regulations are subject to modifications in the future. Like this rulemaking, a public comment period would be held at the proposed stage to allow input to be provided by the regulated community and other interested parties.

28. Comment:

The independent power industry relies on pre-negotiated power purchase agreements for fixed costs. The industry is very concerned about the increase in administrative costs associated with environmental regulation with no apparent benefit to the environment. (966, 1105, 1115)

These regulations will, in no doubt, place an additional financial burden on an already heavily regulated industry. (1100)

Beneficial use of waste coal-fired ash should be encouraged and not made to be even slightly more financially burdensome or punitive. (1104)

The cost of environmental compliance has become overbearing. These unfair cost burdens are life-threatening to the waste coal plants due to their fixed-price contracts, their small size, and the high cost associated with waste coal plant operations. (1105)

Response:

Adopting the NAS recommendations and other changes will benefit the environment and is a reasonable course of action.

The concern of increased cost is valid; however, the beneficial use program results in a cost-savings to the industry.

29. Comment:

Because coal ash contains very serious contaminants, it is crucial that contaminants at each site be fully characterized. All coal ash sites must be monitored with sufficient frequency, and the monitoring must be continued over the long term. (968)

Response:

These regulations have addressed upgrades to both source and site characterizations. For example, the regulations increase the monitoring frequency and number of chemical parameters measured in both coal ash characterization and water quality monitoring for ash sites exceeding 10,000 tons per acre or 100,000 tons in total per project. The duration of water quality monitoring has also been increased to ten years after final coal ash placement.

30. Comment:

It is crucial that coal ash be completely isolated from surface water. (968)

Response:

The regulations contain isolation distances from bodies of water in Subchapter B (related to beneficial use of coal ash).

31. Comment:

The NAS report “recommends that secondary uses (of coal combustion wastes) that pose minimal risks to human health and the environment be strongly encouraged.” DEP policy should likewise encourage safer alternatives where possible, and the regulations should contain a statement to this effect. (969)

Response:

These regulations provide the basis foundation for the safe, beneficial use of coal ash while being protective of human health and safety and the environment.

32. Comment:

The proposed regulations, particularly those relating to certification, must reflect the diversity of the actual beneficial use. Certainly, ash to be incorporated into a product, such as concrete, should not be assessed in the same manner as ash being placed directly on the ground – as in large structural fills and mine reclamation projects. (963)

Response:

These regulations reflect the diversity of possible beneficial uses. The chemical analysis requirements for coal ash used in concrete or cement (§ 290.106(b)(1)) can be waived or modified by DEP (290.101(b)).

33. Comment:

The proposed rulemaking should include a technical correction to § 285.115(c). (1093)

Response:

Section 285.115(c) relates to residual waste landfills and disposal impoundments and is outside the scope of this rulemaking.

34. Comment:

The Board should explain how it selected the various limits in these regulations and how they protect the public health, safety and welfare. (1120)

Response:

Many of the limits in this rulemaking already existed in the residual waste regulations or DEP technical guidance for the beneficial use of coal ash. For example, the chemical limits and separation distance from the water table in this rulemaking were developed through fate and transport modeling and risk assessment. Additional changes were made at the suggestion of the National Academy of Sciences.

35. Comment:

We are concerned with the importing of waste coal and coal ash into PA. Importing of waste coal and coal ash could effectively compromise the environmental benefits for PA by slowing the reduction of coal piles within PA while another state receives the environmental benefits. Therefore, we request an explanation of whether out-of-state waste coal and coal ash will be imported into PA and the impact on the benefits of beneficial use of coal ash if waste coal and coal ash is imported. (1120)

Response:

Transportation costs are a key factor in importing/exporting. While there are some ash sources that import into Pennsylvania, this percentage is very small compared to the very local sources of fuel used to produce ash that is beneficially used at a nearby site.

Any attempt to prohibit the importation of out-of-state waste coal or coal ash through these regulations may raise concerns with the Interstate Commerce Clause of the US Constitution.

36. Comment:

In §§ 290.104(a)(1), 290.105(a)(1) and 290.409(1) the reference to “other applicable statutes and regulations promulgated thereunder” is vague. We recommend more specific references be included in the final-form regulations. (1120)

Response:

A comprehensive detailed list of all applicable provisions of other environmental statutes and regulations that may be applicable is impractical, and the phrase is intended to make clear that the listing of citations in each of these sections is not a limitation.

37. Comment:

Under §§ 290.304(c) and 290.305(b), how would one know if a person is an “expert” in the field of hydrogeology? We recommend that a more precise standard be included in the final-form regulation. (1120)

Response:

These subsections have been revised in the final-form regulations to specify that a PA licensed professional geologist must prepare the assessment plan and abatement plan.

38. Comment:

Sections 290.102(e)(4), 290.103(e)(2), 290.105(e)(9), and 290.404(a)(7) and (b)(3) should also include a 300-foot setback from exceptional value or high quality waters as defined in § 93.1. (1121)

Response:

The Department agrees and has added the suggested language in the final-form regulations.

39. Comment:

Sections 290.102(e)(4) and 290.105(e)(9)(iii) contains a 100-foot setback from a sinkhole or an area draining into one. If the sinkhole is a result of geomorphic features, establishing a distance from the sinkhole will not be protective when a new sinkhole develops under the coal ash. We believe coal ash should not be used as fill or stored (§ 290.404) unless the underlying geomorphic features are stable. (1121)

Response:

The Department agrees that coal ash should not be used as fill or stored unless the underlying geomorphic features are stable.

40. Comment:

I think this is a step in the right direction that we support. (1101)

Response:

The Department acknowledges and the supportive comment.

41. Comment:

The use of coal ash is not beneficial. (1103)

Response:

The beneficial use of coal ash for a wide variety of applications has been successfully demonstrated. The regulations are intended to further support the beneficial use of coal ash while assuring the protection of the public health and safety and the environment.

42. Comment:

The watershed associations did not even get a footnote in the proposed rulemaking despite their importance in watershed health. These volunteer organizations have no means of creating economic wealth and therefore cannot afford to construct, maintain, sample or analyze water from projects that exceed the 100,000 ton limit. (1098)

Response:

Watershed groups have proven to be a valuable resource in restoring and maintaining the watersheds. However, the requirements for water quality monitoring at sites where large quantities of coal ash are placed are designed to establish a long-term scientific record demonstrating the effective use of the material.

43. Comment:

In the current format, the property owner's determination of appropriate land use and desirable environmental restoration is subjugated and only the Commonwealth gets to decide whether beneficial coal ash is necessary. (1098)

Response:

Property owners can decide whether to allow certified coal ash to be beneficially used on their properties.

44. Comment:

In the oral testimony, there is not an existence of trust and not the kind of collaboration that I would expect among the government (DEP), the businesses and industry and the citizens, like the Sierra Club. We need to do tremendous work on that. (1110)

Response:

The Department agrees. In developing the proposed regulations and the technical guidance documents on beneficial use of coal ash at mine sites, the Department met with a wide range of stakeholders, including the Pennsylvania Chamber of Business and Industry, the Electric Power Generating Association, ARIPPA, the Pennsylvania Coal Association, the Pennsylvania Anthracite Council, the Sierra Club, Environmental Integrity Project, and Earthjustice.

45. Comment:

The utilization of coal fly ash to amend and mitigate coal refuse has foreseeable benefits with regard to water quality. However, there are few such sites that have a sufficiently long history to determine whether the available alkalinity in the added ash is sufficient to maintain an elevated pH over the long term. There are methods for estimating long-term acid/base balance for such sites; however, various methods used have been criticized for underestimating the amount of alkalinity needed over the long term. Neither the existing nor the proposed regulations effectively address this issue. (950)

Response:

The Department has 20 years of monitoring data on some permitted coal refuse reprocessing sites that have received coal ash. These sites have not shown negative effects from use of coal ash, and in fact, there are documented instances of water quality improvements through time.

46. Comment:

The *de minimus* [sic] or insignificant concept is missing from these regulations. These regulations should only be effective for projects where more than a certain quantity is involved. (949)

Response:

Although not all projects are subject to all of the requirements in this Chapter, the Department has not developed *de minimis* thresholds for beneficial use.

47. Comment:

Throughout these regulations, the term “minimized” is used. “Minimized” does not establish a binding standard that can evenly be applied to all members of the regulated community or give enough guidance to the regulated community so that they will know

how to comply. A standard should be provided in these regulations that can be clearly understood. (1120)

Response:

The Department disagrees. “Minimized” is an appropriate term and has been used in other sections of the residual waste regulations. It is defined in the dictionary as to estimate or make appear to be of the least possible amount.

48. Comment:

We will learn a lot as we put these new regulations in place. We should plan to review the pitfalls and varying interpretations of these regulations and take corrective or clarifying action to revise them as needed after a year or so. (949)

Response:

The Department continuously reviews its programs and makes adjustments through technical guidance and changes in regulations.

49. Comment:

The increased cost for beneficial use of coal ash that is being proposed severely restricts the operators from hundreds, if not thousands, of small piles unless there is a place to put the ash. (1106)

Response:

The final-form regulations have been amended to provide options and flexibility for remediating small waste coal piles.

50. Comment:

Each permit application requires the application to be prepared by or under the supervision of a PA registered professional engineer. Should there be challenges within the professional engineer process, there currently exists a process to address those issues. PCA believes additional DEP review if redundant and unnecessary and negates the need for an annual fee. (948)

Response:

Permit applications and plans should be reviewed by qualified Department staff to ensure completeness and compliance with all regulatory requirements.

§ 287.1

51. Comment:

The proposed modification of the definition of “coal ash” is in direct conflict with the statutory definition contained in Section 103 of the SWMA. (4)

The proposed regulations change the definition of “coal ash.” The existing definition should be consistent and used in this rulemaking. (948)

Response:

For purposes of Chapter 290, these regulations adopt the definition of coal ash enacted by the General Assembly as part of a comprehensive set of amendments to SWMA involving the beneficial use of coal ash.

52. Comment:

The definition of “coal ash” should be broadened to include ash from combustion of coal and biomass or other alternative fuels, as well as materials added to coal to reduce pollution during the combustion process, such as limestone. (929, 935, 945, 972, 1093, 1095)

Allow ash produced by burning an alternative fuel with coal or coal refuse to be beneficially used as coal ash under the Chapter. (928, 929, 961)

Limit the alternative fuel to less than 20 percent of the heat input of the boiler. (928)

What consideration has been given to co-firing wood and coal? (935)

Provided that the ash generated from coal or waste coal serving as the predominant fuel, ash meeting the certification limits should be authorized for beneficial use without a permit. (1093, 1095)

Response:

The final-form regulations allow ash from co-firing to be used as coal ash, provided the alternative fuel makes up no more than 20 percent by weight of the total fuel and contributes no more than ten percent by weight to the quantity of ash and the quality of the resulting ash meets the certification requirements.

53. Comment:

DEP has proposed amending the definition of “structural fill” by replacing “coal ash” with “material.” We believe this reference equates coal ash with solid waste and does not include use of coal ash to fill open pits from mining. We believe the current definition should be restored. (1093, 1095)

Response:

The definition of “structural fill” has been restored in the final-form regulations.

54. Comment:

The term “water table” should not include isolated saturated zones that do not interact with the regional groundwater table. (1093, 1095)

Response:

The Department determined that coal ash should be kept out of all saturated zones with the following limited exceptions that include mine subsidence control, mine fire control and mine sealing.

§ 290.1

55. Comment:

The new guidelines do not recognize CFB ash as a unique material. A differentiation must be made between CFB ash and crushed coal ash. (935, 966)

The ash from CFB stations is quite different from the ash from a pulverized coal plant. (1112)

Response:

“Coal ash,” as defined in the SWMA, includes CFB ash. Generally, the quality of the coal ash from CFB generating stations presents more options for beneficial use than coal ash from pulverized coal generating stations under these regulations. The ash quality standards apply to any coal ash being beneficially used.

56. Comment:

We suggest including language that coal ash that has been stored or impounded and meets the applicable ash qualification or certification requirements is authorized for beneficial use without a permit. (962)

Response:

Coal ash stored for more than one year is considered disposed under the SWMA and is no longer eligible for certification.

Subchapter B - General

57. Comment:

Sections 290.102(d)(8), 290.104(f)(9), 290.104(g)(4), 290.104(h)(2) and 290.105(e)(8) should prohibit off-site dispersion of dust from coal ash and enunciate the means for complying with this prohibition. The word “minimized” is vague and by definition could allow for significant amounts of fugitive dust to cross the property line from the fill area. (971)

Response:

‘Minimized’ is an appropriate term. A dust control plan is also part of the mining permit that encompasses the site. A plan can address dust control under most conditions, but can not account for all conditions. No plan can control 100% of dust particles but can control enough to prevent a nuisance or hazard. The site inspector can require the permittee to take appropriate additional actions if dust in noticeable amounts is leaving the site.

58. Comment:

Sections 290.102(e)(2), (e)(3) and 290.105(e)(9)(ii) prohibit placement of ash within 300 feet of a water supply unless a written waiver from the owner of the water supply is obtained. This requirement appears arbitrary; if the coal ash presents such a threat to the environment, this regulation should follow the DEP guidance “Recommended Wellhead Protection Area Zone I Delineation Methodology.” This portion of the regulation provides the individual water supply owner very little protection by allowing placement closer than 300 feet with submission of a mere waiver. Does the water supply owner have an understanding of the science of ash placement? Who has responsibility to inform the owner of possible consequences of the waiver? What if the ash placement is downgradient of the water supply? (959, 1120)

Response:

The 300-foot restriction falls within the definition of the wellhead protection area “Zone I” found in § 109.1, which specifies 100-to-400-foot radius depending on site-specific source and aquifer characteristics. The 300-foot restriction downgradient from coal ash placement is appropriate. Informed consent is a required element of any waiver. At surface mine sites, water supply protection is an important part of the permitting process. Water supplies impacted by mining (including mines beneficially using ash) are provided protection under SMCRA and the coal mining regulations in 25 PA Code Chapters 86, 87, 88, 89 and 90. If the person requesting a waiver has questions they are encouraged to contact the Department.

59. Comment:

The consent requirement in § 290.102(e)(2), 290.103(e)(3) and 290.105(e)(9)(ii) is inconsistent with the SWMA, HSCA and the Land Recycling and Environmental Remediation Standards Act because beneficially used coal ash is not a waste. (1120)

Response:

It is sound public policy to require landowner consent for the beneficial use of coal ash.

60. Comment:

The phrase “in a form acceptable to the Department,” found in §§ 290.102(e)(2), 290.103(e)(3) and 290.105(e)(9)(ii) is vague. How will members of the regulated community know what is appropriate? (1120)

Response:

There is a variety of documents that can be used to demonstrate that a waiver has been granted, such as a deed, letter or contract. An approach of not specifying a particular document that needs to be used provides flexibility to the regulated community and property owners. If the person requesting a waiver has questions they are encouraged to contact the Department.

§ 290.101

61. Comment:

There are a variety of beneficial use applications listed in § 290.106(b) in which a water quality monitoring plan is required if certain quantities of coal ash are exceeded. Water quality monitoring should be limited to those applications in which the coal ash is placed in direct contact with the ground. The commentators suggest waiving this requirement in § 290.101(d) for uses under § 290.106(b)(1), (3), (5) and (7). (1093, 1095)

Response:

Generally, the Department agrees. The final-form regulations include language allowing a waiver based on uses under § 290.106(a)(3) and (7). The waiver would not be automatic since there may be instances where water quality monitoring or a modified form of water quality monitoring is appropriate for these uses. Water quality monitoring is only required when coal ash is used as a structural fill, at a coal mining activity site or at an abandoned mine land site.

62. Comment:

Section 290.101(b) provides that sampling, analysis and chemical limit requirements for coal ash certification should apply for ash uses in § 290.106(b). This requirement does not take into account the relative risks associated with different coal ash utilizations. While some flexibility is provided for certain uses (§ 290.106(b)(1)-(3) uses may have waived or modified requirements), it is not clear how waived or modified requirements would be provided, whether on a use basis, job basis, source basis or other. It is

suggested that specific certification requirements also be developed (or waived, as appropriate) for all uses in § 290.106(b) to eliminate uncertainties. (972)

Response:

In determining which of the other uses in § 290.106(a) that could have these requirements waived or modified, the Department carefully considered the end uses. Some involve chemical change that will reduce the leachability of coal ash before or during placement into the environment. Others result in no direct placement of reasonable volumes into the environment. For those uses, the sampling and analysis requirement would be waived most of the time, but not in every instance. There could be ash sources or proposed uses that fit under § 290.106(a), on which, at the very least, the Department would require chemical data on the coal ash. The uses in § 290.106(a)(3) and (7) involve direct placement into the environment in possibly significant quantities, therefore sampling, analysis and chemical limit requirements for coal ash certification are appropriate.

63. Comment:

Comprehensive chemical analysis should only be required in certain circumstances (i.e., placed in direct contact with the ground). The use of ash in products (i.e., cement) should not be subject to comprehensive chemical analysis. (962)

Response:

The final-form regulations do not require comprehensive chemical analysis when the coal ash is used in the manufacture of concrete or cement or when coal ash is used as fuel.

64. Comment:

The use or incorporation of ash into a product – such as cement, concrete, and flowable fill/grouts should not be subject to the comprehensive chemical analyses in § 290.201. However, ash used in such applications must still be done in a manner consistent with the restrictions noted in the regulations for such beneficial uses. (1093, 1095)

Response:

In determining which of the other uses in § 290.106(a) that could have these requirements waived or modified, the Department carefully considered the end uses. Some involve chemical change that will reduce the leachability of coal ash before or during placement into the environment. Others result in no direct placement of reasonable volumes into the environment. For those uses, the sampling and analysis requirement would be waived most of the time, but not in every instance. There could be ash sources or proposed uses that fit under § 290.106(a), on which, at the very least, the Department would require chemical data on the coal ash. The uses in § 290.106(a)(3) and (7) involve direct placement into the environment in possibly significant quantities, therefore sampling, analysis and chemical limit requirements for coal ash certification are appropriate.

If there is a justification for why the chemical analysis would not be necessary, such as stabilization and decreased leachability of the manufactured product, this requirement may be waived.

65. Comment:

The requirement for a water quality monitoring plan and its long-term implementation is not economically feasible for non-profit groups who want to clean up abandoned refuse piles. This requirement will hinder our authority's ability to join with reclamation contractors, as we have already done very successfully. A pile we have already cleaned up would have required an additional \$100,000 for this effort and ten years of monitoring afterwards. Whose liability is it if the post project data is worse for some parameter? Our authority will not do another project of this type if we are burdened with the responsibility to correct past problems. The beneficial use of ash to remediate existing refuse pile sites should have different requirements that do not hinder or stop the potential for cleanup of these environmentally devastating sites. (935)

Response:

The intent of the regulatory requirements is to provide the necessary environmental protections to assure that projects as described in the comment can continue. These protections are needed to assure that there is no adverse environmental impact from the beneficial use of coal ash. For most projects the increased costs are small relative to the total project cost. The regulations have provisions that can result in exemption from water quality monitoring. With respect to potential liability, the Pennsylvania Environmental Good Samaritan Act contains protections from liability for qualified persons engaging in reclamation of abandoned mine lands.

66. Comment:

Adding the water quality monitoring requirements to a project after the fact would unduly burden environmental organizations working to improve streams and rivers, as well as their partner contractors/operators, who should be aware of such issues in the beginning. (935)

Response:

Transition provisions for water quality monitoring are included in the final-form of the regulations to allow existing projects to come into compliance.

67. Comment:

The water quality monitoring plan should not be based on the amount of coal ash that is proposed to be beneficially used at a site. Either some form of monitoring should be

required at all sites (consistent with the mining activity regulations), or monitoring requirements should be imposed on a site-specific basis. (945)

Monitoring should be required at all mine placements, structural fills, or soil amendments involving more than 10,000 tons of ash. (930, 932, 935, 938-940, 943, 946, 947, 951-953, 956, 970)

Response:

In many cases, the potential for the ash to impact water quality is so low, and requiring monitoring is unnecessarily burdensome. Basing the requirement for water quality monitoring on the amount of coal ash to be beneficially used at a site is a reasonable risk based approach to monitoring. Chapter 290.101(d) allows for monitoring of sites with less than 10,000 tons on a site-by-site basis if deemed necessary.

68. Comment:

The proposed regulations exempt many coal ash placement sites from water quality monitoring requirements. We believe water quality monitoring must be required at all sites where over 1,000 tons of coal ash is placed as minefill or structural fill. In particular, we see no rational basis for exempting ash placement operations at abandoned mines from groundwater monitoring requirements when a similar volume of ash would trigger groundwater monitoring requirements at an active mine site. (969)

The 100,000-ton threshold for monitoring is much too high. The cutoff should be at least as low as 10,000 tons; an even lower threshold may be needed. (971)

Response:

In many cases, the potential for the ash to impact water quality is so low, and requiring monitoring is unnecessarily burdensome. Basing the requirement for water quality monitoring on the amount of coal ash to be beneficially used at a site is a reasonable risk based approach to monitoring. Chapter 290.101(d) allows for monitoring of sites with less than 10,000 tons on a site-by-site basis if deemed necessary.

69. Comment:

We believe the tonnage limitations are far too constricting and will result in a disincentive for reclaiming the hundreds of small abandoned mines that pot mark the anthracite coal region. (965, 1115)

Response:

The Department believes that water quality monitoring requirements are appropriate and will establish a robust set of water data that can support the beneficial use of coal ash.

70. Comment:

Section 290.101(d) should be qualified with specific tonnages for use. (972)

Response:

Section 290.101(d) contains the threshold quantities of 10,000 per ton per acre and 100,000 tons per project.

71. Comment:

The regulations in § 290.101(d) do not address non-contiguous projects within the same aquifer or drainage area. Water quality monitoring should be required if a substantial volume of coal ash has the potential to leach into a contiguous aquifer or surface water body regardless of whether or not the coal ash fills are contiguous. (1121)

Response:

Regardless of the size of the project, the certification process is designed to ensure coal ash, when beneficially used, will not leach materials in an amount that may be harmful to the public health or environment. The final-form regulations allow the Department to require water quality monitoring for sites where the quantity of coal ash is below the threshold quantity.

72. Comment:

At no time should coal ash be placed within the water table in an active or abandoned coal mine – absolutely no exceptions. (930, 932, 935, 938-940, 943, 946, 947, 951-953, 956, 970)

The proposed regulations contain no requirement that will effectively assure ash cannot contact local groundwater. (950)

Section 290.101(e) allows the 8-foot separation requirement to be waived based upon an undefined “demonstration.” There are no criteria or standards setting forth the evidence that must be provided to make such a demonstration. Nor is it clear that such criteria could reasonably be set. This language would allow ash to be placed directly into the water table of an aquifer that supplies drinking water so long as PADEP was willing to accept an assertion that no harm would ensue. The isolation requirements should always be met. We urge that all wording after “water table” in Section 290.101(e) be eliminated and the comma replaced with a period. (971, 1121)

It is crucial that coal ash be isolated from underground water. (968)

The loophole allowing DEP to waive or modify how closely coal ash can be placed to groundwater is particularly disturbing, considering that the majority of Pennsylvanians get their water from groundwater sources, such as private wells. (194)

Response:

The Department has amended the final-form regulations so that coal ash may be used within 8 feet of the water table or below the water table only for mine sealing, mine fire control and mine subsidence control.

73. Comment:

NRC scientists studied the placement of coal ash in mines and concluded by consensus that contact with water should be minimized. This recommendation should be adopted in Pennsylvania. The regulation should not allow coal ash to be placed closer than eight feet to the uppermost water table in a mine without the use of a cap, leachate collection and detection systems and a composite liner (using synthetic material and clay) to minimize leachate generation and prevent leachate from reaching groundwater. (971)

Coal ash should not be placed within eight feet of the uppermost water table in a mine without use of a cover, leachate collection and detection systems and a composite liner (using synthetic material and clay) to minimize leachate generation and prevent leachate from reaching groundwater. At no time should coal ash be placed within the water table in an active or abandoned coal mine. (956)

Response:

The Department has amended the final-form regulations so that coal ash may be used within 8 feet of the water table or below the water table only for mine sealing, mine fire control and mine subsidence control.

74. Comment:

The requirement in § 290.101(e) that coal ash not be placed within eight feet of the water table appears to be arbitrary. The use of coal ash as drainage material as per § 290.106(b)(6) implies that when placed in this manner it will experience exposure to groundwater. Our suggestion is to remove subsection (e) and replace it with subsection (f). (959)

Response:

The use of coal ash as drainage material has been removed from the final-form regulations.

75. Comment:

Section 290.101(f) is broad and vague and will result in compliance disputes. “Coal ash may not be used in a way that causes water pollution” needs to be more clearly defined. (959)

Response:

The term “pollution” is defined in § 287.1 and the Clean Streams Law. These definitions are sufficient.

§ 290.102

76. Comment:

There is no permit required for a structural fill, regardless of the size of the fill or the potential for harm that it poses to the surrounding community. This provision will allow structural fills of considerable size to be approved and carried out without any notice provided to the surrounding community. There is no opportunity for public comment on structural fills. The provisions in this rule should assure that DEP will reach out to the local community as a source for important relevant information. (971)

Response:

There is no authority under the SWMA to require permits for the beneficial use of coal ash as structural fill. These regulations provide for a public notice process at § 290.102(c).

77. Comment:

Section 290.102(a) should only be applicable to new projects or active projects that will extend beyond two years from the effective date of publication. (1095)

Response:

Projects that begin before the effective date of these regulations will not be subject to this requirement.

78. Comment:

The commentator supports the threshold amount of coal ash used as structural fill for requiring deed notifications. (945)

Response:

The commentator’s support has been noted.

79. Comment:

Any use of coal ash as structural fill, regardless of volume, must be recorded on the placement site deed. (969, 971)

Response:

Provisions for deed notices are found in § 290.102(a)(7).

80. Comment:

Has the Board considered adding a requirement in § 290.102 similar to that found in § 290.103(c) that requires DEP to inform the person providing the notice whether the proposed structural fill is consistent with this section? If a similar requirement is added, we ask that it specify how and when a response will be provided. (1120)

Response:

The Department has amended the final-form regulations as suggested.

81. Comment:

The pH range limitation does not seem appropriate, especially for CFB coal ash. The commentator suggests replacing “in the range of 7.0 to 9.0, unless otherwise approved by the Department” with “greater than 7.0.” (945)

The pH requirements will restrict the use of CFB ash due to the upper level restrictions. (1115)

Lowering the pH range to 6.0 would increase leaching potential of several metals, while lowering the upper range to 9.0 would reduce leaching of metals. We recommend the range be 7.0 to 9.0. (1121)

Response:

The lower pH range has been changed to 7.0 in the final-form regulations. The upper limit was retained where public access to the site is not restricted during storage and placement of the coal ash. A pH level above 9.0 may be allowed when public access is restricted.

82. Comment:

When will DEP publish the § 290.102(b) summary in the *PA Bulletin* of each notice of structural fill use of coal ash, before or after the coal ash is actually used? (1120)

Response:

While § 290.102(b) does not specify when the summary has to be published, the Department will publish each summary upon receipt and prior to the commencement of ash utilization.

83. Comment:

How was it determined that the threshold quantities for public notification (10,000 tons per acre or 100,000 tons per project) in §§ 290.102(c) and 290.105(b)(6) adequately protect the public health? (1120)

Response:

The chemical standards in § 290.201 are adequate to protect the public health and are more important than the quantity limits. There are requirements throughout Chapter 290, including public notification, which apply to larger sites where coal ash will be beneficially used. The threshold quantities in the proposed regulations were developed by the Department on the basis of general project sizes and best professional judgment regarding small and large-scale projects.

84. Comment:

Can Internet addresses be used in addition to the public offices under § 290.102(c)(3)? (1120)

Response:

The purpose of § 290.102(c)(3) is to require the newspaper notice to contain the physical location where the request for use of coal ash as structural fill may be viewed. While an Internet address could be provided in the notice, it is not required.

85. Comment:

The biologically-active zone is usually 24 inches. § 290.102(d)(6) requires the coal ash to be covered by 12 inches of soil. This would result in direct exposure of plant roots, soil organisms and burrowing animals to contaminants in the coal ash. To prevent toxic effects in plants and animals that migrate into the restored areas, a minimum of 24 inches of clean soil should be placed over the coal ash fill. (1121)

Response:

Section 290.102 refers to use of coal ash as structural fill. Structural fill is the engineered use of coal ash as a base or foundation for a construction activity such as a building. DEP has observed successful plant growth directly on mine reclamation sites and does not anticipate problems in establishing plant growth on structural fill areas around buildings, parking areas, etc., that typically are “green” areas.

86. Comment:

Section 290.102(d)(7) includes compaction specifications for coal ash structural fill. Overly compacting materials on surface mines has prevented re-growth of the native hardwood forest. Improved rooting conditions would benefit native grass plantings. We recommend DEP consult with surface mine restoration experts to develop protective compaction specifications that will still enable tree root growth. (1120)

Response:

Section 290.102 refers to use of coal ash as structural fill. Structural fill is the engineered use of coal ash as a base or foundation for a construction activity, such as a building. The compaction standards are necessary to ensure structural stability for construction purposes. Lands where coal ash is placed as structural fill will not be used to re-establish hardwood forests or native grasses.

87. Comment:

The addition of organic materials (i.e., compost and biosolids) would reduce both leaching potential and bioavailability of contaminants in the coal ash. We recommend that DEP require the addition of organic material to raise the percent organic material in the ash used as structural fill to five percent. (1121)

Response:

The Department has accepted that the chemical standards required under § 290.201(a) are protective without added organic matter. The addition of organic matter could adversely impact the physical characteristics needed for support of structures to be constructed at the site.

§ 290.103

88. Comment:

Section 290.103(a) is already addressed under § 290.101(a). What is the need to duplicate that language in this subsection? (1120)

Response:

The Department agrees that the language is unnecessary and has deleted it from § 290.103(a) in the final-form regulations.

89. Comment:

This section requires no permit, no public notice and comment nor any monitoring of projects involving coal ash as a soil substitute or soil additive regardless of their size.

There is no description of the chemical and leaching analyses that must be done on coal ash to be used for this application and no requirement for a leaching analysis on the mixture(s) of soil and ash that will occur at application sites. There are no limits on the steepness of slopes on which coal ash can be applied as a soil substitute or additive. (971)

Response:

Public notice is based upon the volume of coal ash that will be placed at the site as a soil additive or soil substitute. The metal loading rates are such that the public notice requirements for placement of coal ash in an amount equal to or more than 10,000 tons per acre or 100,000 tons in total per project would not be triggered.

90. Comment:

Why is the standard procedure in calculating loading specified to utilize the total loading and not the leachable metals loading? (3)

Response:

Loading rates are based on total metals due to plant uptake from direct contact. Leachable metal standards are designed to protect groundwater. Loading rates serve to limit the volume of ash that can be used to produce soil at a site.

91. Comment:

Monitoring of surface water drainages and plant uptake of metals should be required for projects using coal ash as soil amendments or soil additives. (930, 932, 935, 938-940, 943, 946, 947, 951-953, 956, 970)

Response:

The isolation distances in § 290.103(d) are designed to protect surface water. The scientifically based loading rates prevent the uptake of metals to levels that would be harmful.

92. Comment:

The pH range of 6.5 to 8.0 seems appropriate, since it applies to a mixture of soil and coal ash. (945)

Response:

The commentator's support is noted.

93. Comment:

The requirement that coal ash not be applied to soil used for agriculture where the soil pH is less than 5.5 seems inappropriate, since the ash will be used to neutralize the soil pH. § 290.103(d)(7) should be deleted. (945)

Response:

Many heavy metals are more soluble in low pH conditions which can lead to metal uptake by plants. There is potential for the plants to be consumed by animals or people, leading to increased metal exposure. While alkaline coal ash may raise the soil pH, once the alkalinity of the ash is neutralized by the acidic soil, the soil pH can once again decrease. For these reasons, the Department has retained the language in the final-form regulations.

94. Comment:

The requirement that coal ash may not be applied if resultant chemicals or physical conditions would be detrimental to biota is overly burdensome to industry and the costs of proof would far outweigh the potential benefits. The loading rates already address the potential impact to the environment. § 290.103(d)(6) should be deleted. (945)

Response:

While the loading rates are designed to protect biota, there could be other chemicals applied to the soil that, in combination with coal ash, could be detrimental. It should also be noted that this is not a new requirement, but was required in § 287.662(d)(12).

95. Comment:

Section 290.103 should include loading rates for all parameters sampled during the coal ash certification process. (969)

There are no cumulative contaminant loading rates in § 290.103(f) established for trace metals known to be present in eastern coal ashes such as antimony, thallium, beryllium, cobalt, or vanadium. (971)

Response:

Loading rates are only calculated for plant uptake of metals. Because coal ash contains known high values of metals (listed in the cumulative rates), these would be exceeded far sooner than values for trace metals that are typically non-detectable in ash.

96. Comment:

The method DEP will use to inform the person proposing to use coal ash that the use is consistent with this section should be specified in § 290.103(c). (1120)

Response:

The Department will notify the person in writing.

97. Comment:

Section 290.103(c)(5) states, “Coal ash shall be applied at a rate per acre that will protect public health, public safety and the environment.” This requirement is vague. What criteria will be used to make this determination? (1120)

Response:

Section 290.103(d)(5) is intended to provide flexibility. Section 290.103(b)(5) has been taken from existing § 287.662(d)(10) and has not been problematic for the Department or the regulated community.

98. Comment:

Is there any need to report any information pertaining to this section to DEP, as is done in other sections? (1120)

Response:

The final-form regulations include a requirement for the operator to keep records and make them available to the Department upon request. The final-form regulations also include a requirement for the operator to notify the Department within 72 hours of any evidence that the coal ash does not meet the chemical standards in §290.201(a).

99. Comment:

For very poor, thin soils, the amended soils could consist of primarily coal ash rather than soil with a coal ash amendment. Biota could be at risk from direct exposure to contaminants in the soil and coal ash mixture. If insufficient soil is present to achieve the one-foot depth or suitable conditions for plant growth, then organic materials (i.e., compost and biosolids) need to be added in addition to the coal ash. (1121)

Response:

The Department routinely allows coal ash and organic material to be used together for a soil substitute or additive. In these cases, a manufactured soil from coal ash is beneficial, because it can serve as a substrate for vegetation that may not otherwise exist. Please note that coal ash alone is not a recommended replacement for soil, and is not considered a beneficial use.

100. Comment:

Although analysis of receiving soils is required in § 290.103(b)(5), it is unclear if the maximum loading rates must account for pre-amendment contamination. (1121)

Response:

If the soils are within normal ranges for PA soils, their contribution to the maximum loading rates will not be a concern.

Prior to beginning applying coal ash, the operator evaluates the site (as part of a mining permit or NPDES permit) to make sure that the location has not been subject to a spill or release or other waste deposition, or is known to have natural characteristics that could, when mixed with coal ash, have the potential to affect human health and the environment.

101. Comment:

The cumulative loading rates in § 290.103(f) would result in concentrations of boron, cadmium, chromium, copper, lead, selenium and zinc in the one-foot soil interval that exceeds toxic thresholds for biota. The loading rates need to be revised to prevent soil concentration from exceeding ecological risk concentrations to protect terrestrial biota. We recommend using the Oak Ridge National Laboratory Preliminary Remediation Goals (www.esd.ornl.gov/programs/ecorisk/documents/tm162r2.pdf). (1121)

Response:

The cumulative loading rates for metals have been used in the sewage sludge land application program for many years. Those loading rates are based on the protection of human health, plants, livestock, non-domesticated animals, and soil organisms. The protection endpoints in Table 4 of the cited Oak Ridge National Laboratory document for the mentioned metals include plants, woodcocks, mice, and earthworms. According to that document, the confidence in the Preliminary Remediation Goals in Table 4 is "generally low."

102. Comment:

For active and abandoned mine reclamation activities, public notice is required in newspapers for projects using more than 10,000 tons per acre or 100,000 tons per any one project. For beneficial use as a soil amendment, public notice is not required, and the coal ash must be incorporated in the top layer of soil within 48 hours. It would seem that DEP considers anything greater than a one-foot-thick layer of ash (when used as a soil amendment) unlikely to protect human health, public safety and the environment, but for mine applications does not see the need for public notification or other requirements until the ash to be applied exceeds the equivalent of a layer of roughly five feet thick. (950)

This section does not require public notification requirements found in § 290.102. Would the public health be better protected if similar notification requirements were included in this section? (1120)

Response:

The quantity of coal ash that may be used as soil amendment or soil substitute is based on loading rates not thickness of ash layer and is limited by the loading rates in § 290.103(e). The regulations require incorporation into the top one foot of soil within 48 hours.

§ 290.104

103. Comment:

§ 290.104(b) requires a person proposing to use coal ash at a mining activity site to obtain a permit from DEP. How soon before coal ash is used must a person request permission from DEP? In what form must the request be made? How and when will DEP respond to the request? Can coal ash be used before DEP approval occurs? These issues should be addressed in the final-form regulations. Alternatively, if this permit process is guided by other DEP regulations, an appropriate cross-reference should be included in this subsection. (1120)

Response:

Coal ash beneficial use requests are appropriate under a new mine activity permit or permit revision. These actions are explained in Chapters 86-90 and approved mining permit guidance. The regulations contain references to compliance with Chapters 86-90 in § 290.104(a)(1), and also clearly state that a person must submit a request to beneficially use coal ash at a coal mining activity site “as part of the reclamation plan under the mining permit” in § 290.104(b). The regulations in Chapters 86-90 set forth detailed procedures for permit applications, including content requirements and timing of approvals.

104. Comment:

§ 290.104(b)(2) makes reference to a “certification number.” This is the first time this term is used in Chapter 290. We are aware that § 290.201(d) identifies the meaning of this term. However, we believe the regulated community would benefit from a definition of this term. We note that this term also appears in Subsection (j) and the term “certification *identity* number” appears in §§ 290.105(b)(2) and (j) and 290.201(d). (1120)

Response:

"Certification number" has been changed in the final-form regulations to the term certification identifier. A cross reference to § 290.201(c) has also been included in § 290.104(b)(2) as a means of explaining the term and its usage.

105. Comment:

Section 290.104(b)(2). If a certification number has been issued to a supplier for the coal ash and the site operator is approved to receive it, the site operator must maintain records that the ash is obtained from a generator source that has been approved. This is an unnecessary repeat of steps already in place for the certification. (935)

Response:

This provision has been changed and used to track coal ash to those sites that receive coal ash from multiple sources and guards against the receipt of unapproved sources.

106. Comment:

Section 290.104(c). The annual \$2000 permit filing fee is extremely burdensome to industry and does not seem reasonable funding because most of the work is performed at permit filing. It should be reduced to a one-time fee at the time of filing. (945, 948)

The annual \$2000 permit filing fee will add \$20,750 to any project. (959, 1115)

Commentators who presumably will be paying this fee believe it is excessive and unnecessary. The Board should explain how the fee was derived and why it is needed. (1120)

Response:

The fee will only cover half of the projected costs for the Department to review applications for the beneficial use of ash and to monitor the use. The primary components of the cost for the Department are staff time and sampling. Since monitoring is necessary on an ongoing basis, the most equitable way to cover these costs is through a periodic fee, rather than assessing the entire fee up front.

107. Comment:

Section 290.104(c)(1) requires all coal ash beneficial use sites to be permitted, active and pay an annual fee of \$2000. The regulation does not allow for a permitted and inactive site. Further, the regulation calls for strict monitoring of all active ash disposal sites whether they are actively receiving ash or not. This has resulted in the expiration of numerous ash disposal permits. The PA Anthracite Council recommends establishment of a second category of permitted ash disposal sites that are approved, but are not actively utilizing ash for beneficial use. Operators would still go through the normal public comment and permitting process. However, they would be required to give a one year

notice and exempt from the background monitoring requirements while the site is inactive. Operators would be required to pay the \$2000 fee and begin doing the one year of background monitoring before ash could begin being placed on the site. To offset tracking costs, DEP can levee a \$250 annual inactive permit fee. (965, 1115)

Response:

Previous attempts to track the various beneficial use status of sites proved to be cumbersome for the Department. It was not clear to the public or other Department staff when a site would or would not accept ash if the status was ambiguous. To allow a provisional status as suggested would result in outdated monitoring data and plans and perpetuate uncertainty for the future of the site. Allowing beneficial use of coal ash at mine sites has an objective of encouraging active reclamation. The suggestion by the commentator discourages meeting of this objective.

108. Comment:

Section 290.104(f)(1) This paragraph indicates that “The total cubic yards of coal ash placed on the sites is less than the total cubic yards of refuse, culm, or silt removed from the sites”. This statement should be revised to indicate: “The total cubic yards of coal ash placed on the sites is equal to or less than the total cubic yards of refuse, culm, or silt removed from the sites”. (1)

Response:

Section 290.104(f)(1) of the final-form regulations allows a larger volume to be placed if approved by DEP, as proposed. Therefore, the suggested change is not needed.

109. Comment:

What is meant by the terms “coal surface mining” and “coal refuse reprocessing sites” in § 290.104(f) and “coal refuse disposal sites” in § 290.104(h). (1120)

Response:

These terms are defined under Chapters 86-90 and operators conducting such activities are regulated under these chapters.

110. Comment:

Under current § 287.663(d)(5), there are provisions for DEP to allow placement of more coal ash at an individual coal refuse pile of multiple coal refuse pile reclamation projects than the coal refuse removed if the specified requirements are met. This afforded DEP with an opportunity to greatly influence the amount of remediation and stream quality improvement that may be obtained by permitting the removal of coal refuse and

placement of coal ash at a rate that is consistent with the circumstances of individual site areas. (935)

The requirement in § 290.104(f)(1) that the volume of coal ash placed at the site may not exceed the volume of coal, coal refuse, culm or silt removed from the site by an active mining operation unless approved by DEP is inappropriate and contradictory to § 290.104(e)(2), which allows backfilling of historical pits within the surface coal mining permit. At the end of § 290.104(f)(1), “or used in the reclamation of historical pits from coal mining activities” should be added. (945)

Section 290.104(f)(1) limits the amount of coal ash that may be brought to the site to the volume of materials removed unless DEP approves a different volume. This will create a disincentive for mine operators to enter an abandoned mine area for re-mining purposes. We recommend that § 290.104(f)(1) be changed to account for coal volumes that have been mined decades ago and allow for increased volumes of coal ash at those sites based on estimates of the historic extraction of coal from the site and a lack of viable overburden that can be used in backfilling. (965)

Throughout the bituminous and anthracite coal fields there are many small abandoned refuse piles (< 100,000 tons of refuse) that will not be economic to remove as a result of these regulations unless there is the ability to manage the ash at larger sites. The costs of monitoring, permitting, bonding and developing a small mine site are substantial relative to the amount of waste coal extracted and utilized. The additional costs of monitoring imposed by these proposed regulations will, in many cases, make the beneficial use of coal ash at these already marginally economic small coal refuse sites cost prohibitive. If the ash from these small sites cannot be placed at larger sites, then it is highly unlikely that the smaller abandoned piles will be reclaimed. § 290.104(f)(1) should be modified to allow a greater volume of coal ash to be placed than the amount of coal, coal refuse, culm or silt removed when a greater volume is needed to insure the reclamation plan is achieved, the abatement plan per Subchapter F of Chapter 87 or Subchapter G of Chapter 88 requires additional ash placement at the site or if it is part of an integrated multi-site refuse reprocessing operation, which should result in an overall benefit to watershed quality. (966)

How will DEP administer this provision? Will this provision allow volumes previously removed to be counted towards the volume limitations? (1120)

Response:

Section 290.104(f)(1) allows the Department to approve a larger volume where the mine operator demonstrates that reclamation will be enhanced or water quality will be improved by the additional coal ash. Considerable changes to § 290.104(f) have been made in the final-form regulations to allow for increased amounts at a particular pile where small piles are reclaimed and the ash from that waste coal will be used at the larger pile.

111. Comment:

Section 290.104(f)(1) specifies that the volume of coal ash is measured on a cubic yards basis. What guidelines will be used for determining a different basis? Coal mining and sales are accounted on a tonnage basis. Should the volume of coal removed be measured as it is present in the rock strata or after it has been mined and swells? In addition, coal refuse, culm or silt removed can be measured either on a volume or by weight basis. § 290.104(f)(1) should be modified to allow measurements to be determined either on a weight or volume basis. (959)

Has DEP considered allowing either a volume or a tonnage measurement? (1120)

Response:

The volume (cubic yards) of coal, coal refuse, culm or silt must be included in the mining application (calculated by an engineer). This volume is used to determine how much coal ash can be returned to the site. This calculation is done prior to approval of the mining permit/ash beneficial use, not a running total. Therefore, no modification has been made to this section.

112. Comment:

The 24 hour limit in § 290.104(f)(3) is too restrictive and does not allow for operational considerations (e.g., weather) or for weekends/holidays. (962, 1095)

Response:

It is not unreasonable for an operator to maintain the site by spreading the coal ash promptly. This avoids potential problems of airborne ash which is a nuisance and is, generally, avoidable. If ash is being delivered to the site, personnel should be available at the same time to place it properly.

113. Comment:

Section 290.104(f)(4). This paragraph indicates that “Ash from each source must be tested individually.” Unless the ash from each source is segregated (that is normally not common practice), how can this be done? (1)

It is agreed that periodically evaluating compaction may provide useful feedback for certain sites where coal ash is being beneficially used. However, the requirement that ash from each source be tested individually is problematic for a reclamation site receiving ash from multiple generators, especially if those sources vary throughout the calendar year. Compaction testing should be conducted on a semiannual basis, but at a time and in locations at the site where ash is being placed that will yield data that is representative of the compaction being achieved at the site. (1095)

What is the need for testing each source of coal ash separately for the compaction standards in § 290.104(f)(4)? (1120)

Response:

The final-form regulations remove the requirement of separate testing for each coal ash source.

114. Comment:

It appears § 290.104(f)(5) prohibits placement of coal ash where refuse material is deposited in large surface piles. This could eliminate the waste coal power industry from removing this refuse, utilizing it in CFB plants, and returning the ash to restore the properties under controlled, engineered designs as a clear beneficial use. We do not believe that is DEP's intent and recommend rewriting § 290.104(f)(5) so at coal reprocessing sites where refuse is found in large piles, piles be designed and constructed with coal ash in accordance with an engineered design and in a manner that blends in with the general surface configuration and compliments the surface draining patterns of the surrounding landscape. (966)

What is the basis of this prohibition? (1120)

Response:

Language in § 290.104(f)(5) has been rewritten to clarify ambiguous language that formerly existed in § 290.104(f)(5) and (6). Reclaiming piles of ash is allowed under limited circumstances where the projects are integrated and there will be overall environmental improvement.

115. Comment:

It is critical that the existing large refuse piles continue to be allowed to be rebuilt under § 290.104(f)(6). (1106)

Response:

The language in § 290.104(f) has been revised. Provisions in the final-form regulations have been made to allow greater amounts be brought to a pile where multiple sites are an integrated project and meet reclamation and environmental requirements.

116. Comment:

Given that the SMCRA requires that damage be contained within the mining activity site, and the leaching from the coal ash has been found to be outside the permitted boundaries, this represents a fundamental violation of SMCRA. Therefore, full site characterization and hydrogeological characterization before ash placement must be required. (953)

Response:

The Department disagrees with the commentator's assertions regarding alleged leaching from coal ash outside the permitted boundaries and that leaching from coal ash has caused violations of SMCRA. With respect to site and hydrogeological characterization for those sites under SMCRA, the mining permitting process includes characterization of the geology and hydrology of the site. For sites under SMCRA, the mining permit application process addresses the characterization of the geology and hydrology of the site. Site characterization and hydrogeological characterization during the mine permit application review process is required before ash placement. Chapter 290 places additional requirements on mine site assessment.

117. Comment:

“Overall improvement” in § 290.104(f)(6)(iv) must be further defined to avoid arbitrary decisions that result in the long-term contamination of water supplies by ash placement. The language should make clear that all projects involving ash placement, including coal refuse reprocessing sites where acid mine drainage is evident, shall be designed to prevent degradation of the surface or groundwater quality. (971)

In § 290.104(e), phrases like “overall improvement” and “prevent the degradation” are vague. In addition, the phrase “overall improvement” could be interpreted to only require a degree of improvement. For example, if the polluting acid drainage from waste coal is the baseline standard, either of these provisions could allow further pollution, even though they may meet the regulation's requirement to be an overall improvement and prevent degradation. The Board should explain how it intends these requirements to be implemented and consider amending them. (1120)

Response:

“Overall improvement” in water quality at mine sites has been interpreted to be a decrease in concentration of contaminants or a decrease in pollution load. In addition to the provisions contained in this chapter, water supplies impacted by mining activities are specifically protected under the mining acts and regulations. See Chapters 87, 88, 89 and 90 at §§ 87.47 and 87.119, 88.27, 88.107, 88.307, and 88.381, 89.145a, 89.146a, 89.152, and 89.153, 90.15. Ash is routinely placed in areas that are drastically disturbed by previous mining impacts. The groundwater in these instances has been previously impacted by mining undertaken prior to 1977 (when laws governing surface mining were enacted) to the point where it is not potable. Very rarely do domestic or public water supplies exist in the same local aquifer as the ash placement area.

118. Comment:

Without monitoring requirements in § 290.104(g), the means for ensuring compliance with the requirements in this section concerning ash application and metals loading rates

are questionable, and the avoidance of plant uptake of metals or surface water pollution is not ensured. (971)

Response:

The loading rates have been set at levels to prevent plant uptake of metals from being a problem to public health or the environment. The use of the coal ash as a soil substitute or additive on a mine site is subject to review of the entire mining permit area to judge suitability of this use.

Loading rates serve to limit the volume of ash that can be used to produce a soil additive or soil substitute.

119. Comment:

The language in § 290.104(h) should make clear that projects involving ash placement at coal refuse disposal sites shall be designed to prevent degradation of the surface or groundwater quality. (971)

Response:

Modern coal refuse disposal sites are lined. This is designed to prevent degradation of the surface and/or groundwater quality from the coal waste.

120. Comment:

The costs associated with the regulations and the volume limitations of this subsection will not make it economical to reclaim existing small coal refuse piles. We ask the Board to explain how these regulations will not have a negative impact on the reclamation activities taking place throughout PA. (1120)

Response:

To date, 145 million tons of waste coal has been used to fuel power plants. Annually ten percent of Pennsylvania's power is produced from power plants burning waste coal. The ash that is generated from the waste coal has been used to reclaim thousands of acres of abandoned mines and is expected to continue. More than 11 million tons of coal ash has been beneficially used for mine reclamation each of the past several years. The estimated cost of disposing this material at a landfill would be at least \$275 million per year. Costs of placement at mine sites are approximately \$55 million per year. Use of coal ash at mine sites as opposed to land filling the material is a savings to the industry of at least \$220 million per year.

121. Comment:

The referencing of § 290.201(c)(5) in § 290.104(h)(2)(i) may not be appropriate as that section requires a number of samples and sampling periods that do not appear adaptable to a quarterly interval at all mine site locations. (972)

Response:

The reference has been changed to § 290.201(b)(6)(i) and (ii) in the final regulation.

122. Comment:

For both economic and environmental reasons, the placement of reprocessed refuse rejects from various sources should be allowed to be incorporated into these reclamation projects, as long as the blending of the outside fuel allows for the removal and processing of marginal refuse that otherwise would have been left behind and the other criteria in § 290.104(f)(6) are met. (1106)

Response:

This regulation does not pertain to “the placement of reprocessed refuse rejects,” only coal ash that may result from the recovery of coal ash from refuse sites.

123. Comment:

Section 290.104(f)(4) includes compaction specifications for coal ash at coal surface mining and coal refuse reprocessing sites. Overly compacting materials on surface mines has prevented re-growth of the native hardwood forest. Improved rooting conditions would benefit native grass plantings. We recommend DEP consult with surface mine restoration experts to develop protective compaction specifications that will still enable tree root growth. (1121)

Response:

Compaction is needed to provide stability and reduce infiltration of precipitation. Compacted ash is not the rooting medium. The rooting zone will be established at the surface.

124. Comment:

Under the proposed regulations, coal ash is not suitable as a stand alone for supplemental alkaline addition to meet calculated alkaline addition requirements of surface mines. Coal ash with a high calcium carbonate content should be considered a supplement for alkaline addition to surface mines based purely on the 35 to 40 percent of calcium carbonate that is in the ash. (1105)

Response:

The only place in the regulations that alkaline addition is mentioned is in 290.201(a)(2) and (3). The value given is 100 parts per thousand, or 10% by weight. The reference to “not suitable as a stand alone” appears to be from a Department technical guidance document, not the proposed regulations.

125. Comment:

Section 290.104(i). This paragraph indicates that “A person using coal ash at a coal mining activity site shall, each quarter that coal ash is being used at the site, sample the ash after it has been placed at the site and such sample shall.....(etc). Based on the fact that ash sampling will be conducted at the plant for chemical and leachate analysis, and if the permittee can demonstrate that no chemical or physical changes will result due to the power plant being in close proximity to the permit site, the wording can be revised to read as follows: “At the discretion of the PA DEP, a person using coal ash at a coal mining activity site shall, each quarter that coal ash is being used at the site, sample the ash after it has been placed at the site and such sample shall...(etc). (1)

The requirement in § 290.104(i) that the person using coal ash at a coal mining activity site conduct quarterly sampling and analysis is totally unjustified and differs from the current coal ash policy document. If only certified coal ash is being used at the site, there should be no reason for the person using coal ash to be required to also conduct quarterly sampling. § 290.104(i) should be deleted. (945, 972)

We suggest that additional monitoring should not be required in § 290.104(h)(2)(i) if the person can demonstrate that there is no significant difference in the quality of the ash placed at the site and the quality submitted by certification under § 290.201. (962)

The requirement is duplicative of the requirement for generators to complete quarterly chemical analyses of ash to be used for mine reclamation. We suggest removing this requirement. (1095)

Since generators are required to perform chemical analysis of the ash, what is the need for this provision? If the source of the ash and the ash placement are the same site and the only ash being placed comes from that generator, what is the need for additional testing? (1120)

Response:

This requirement serves as a check to ensure the coal ash delivered for beneficial use from a generator is the same quality of material as that which was certified at the source and that nothing has changed or been added during transportation. Section 290.104(i) in the final-form regulations allows a lesser frequency to be approved where the mine receives ash from only one source.

§ 290.105

126. Comment:

This section replaces § 287.664 titled “Coal ash beneficial use at abandoned coal and abandoned non-coal surface mine sites.” Is DEP eliminating use of coal ash at non-coal mining sites, such as quarries? If so, what is the reason for this change in policy? (1120)

Response:

Placement at noncoal sites is no longer approvable under this program. Unlike abandoned coal mine sites, which typically have degraded and acidic groundwater, abandoned non-coal mines, especially quarries, usually have reasonably good quality groundwater associated with them. Most of the benefits for coal ash placement at abandoned coal mine sites, such as reduction in acid mine drainage and removal of coal refuse, are not applicable to non-coal sites.

127. Comment:

To be consistent with the three previous sections, the title of this section should be amended to “Beneficial use of coal ash at abandoned coal surface mine sites.” (1120)

Response:

Changes have been made in the final-form regulations to assure consistency in section titles.

128. Comment:

What specifically is meant by the term “abandoned coal surface mine sites?” Can a cross-reference be added to a definition of this term? (1120)

Response:

This term has been changed to “abandoned mine lands.” A provision has been added to § 290.105(a) to clarify the meaning of this term by reference to an existing definition in 25 Pa. Code § 86.252.

129. Comment:

Section 290.105(a) requires written approval from DEP before coal ash can be beneficially used at abandoned coal surface mine sites. How soon before coal ash is used must a person seek approval from DEP? In what manner must the request be made? How and when will DEP respond to the request? What criteria will DEP use to determine if coal ash can be placed at the site? The final-form regulation should provide more direction on how this process will work. (1120)

Response:

The Department recognizes § 290.105 was vague in several regards and has clarified that coal ash may be beneficially used at abandoned coal surface mine sites if the reclamation work is pursuant to a contract with the Department. This clarification recognizes the Department's ability, and its limitations, to enter into sole source contracts based on a submitted proposal or to competitively bid a contract initiated by the Department. Proposals must be submitted with sufficient lead time to allow for review and development of a contract; to meet the public notice requirements of this section; and, to meet the requirements of PA's procurement procedures.

130. Comment:

Subsection (b)(5) needs to be modified to clarify the criteria which will determine when the beneficial use of coal ash at an abandoned mine will require approval of a water quality monitoring plan. Currently, it states a plan is required "if applicable." No explanation is given as to when a plan will not be required. (4)

Who determines if a water quality monitoring plan is required under § 290.105(b)(5)? (1120)

Response:

The Department agrees with this comment and has clarified this in the final-form regulations. A water quality monitoring plan is required according to the requirements of § 290.101(d). If either more than 10,000 tons of coal ash per acre or more than 100,000 tons of coal ash in total will be used as structural fill, at a coal mining activity site or at an abandoned mine land site The Department may require a water quality monitoring plan for projects involving lesser quantities of coal ash for other beneficial uses of coal ash where site conditions warrant.

131. Comment:

Requirements that warrant concern for non-profits just trying to improve the environment are the need for engineer sealed and signed plans, one year of background water quality data before a project commences and extensive water quality analysis after project completion. Limits on stream encroachment are a problem, since nearly all the piles we have been involved with are in the stream to begin with. (935)

Response:

It is important that all projects, whether they are public, private, or non-profit, are properly designed (sealed by a licensed professional engineer) and that all permits applicable to the proposed activity are obtained.

The need for background and post-completion water quality monitoring is related to the quantity of ash utilized for the project. This is consistent whether the project is public, private, or non-profit.

The coal ash regulations do not alter the ability to remove (refuse or spoil) piles that are in a stream. The regulations do, however, prevent coal ash from being placed within 100 feet of the stream once the pile is removed. The Department does not believe this requirement will have a significant impact on the reclamation of refuse and spoil piles that encroach on streams.

132. Comment:

In § 290.105(e)(1), the pH of the coal ash is limited to the range of 6.0 to 9.0, unless otherwise approved by DEP. This pH limitation does not seem appropriate, especially for CFB ash. I suggest replacing “in the range of 6.0 to 9.0, unless otherwise approved by the Department” with “greater than 7.0, which is the limit for use at active mining activity sites and coal ash certification. (945, 962)

The acidic conditions at mine sites benefit from the alkaline nature of coal ash, especially that generated by CFB waste coal-fired stations. In other words, the intent should be to restrict the placement of materials at such sites (i.e. mine reclamation sites) that are acidic in nature – that is, materials having a pH of less than 7. The commentator suggested deleting the 6.0 to 9.0 pH range in the proposed rule and replacing it with greater than 7. (1095)

Lowering the pH range to 6.0 would increase leaching potential of several metals, while lowering the upper range to 9.0 would reduce leaching of metals. We recommend the range be 7.0 to 9.0. (1121)

Response:

Proposed § 290.105(e)(1) has been deleted from this section and is addressed in § 290.201(a)(2) (relating to coal ash certification) in the final-form regulations.

133. Comment:

Water quality monitoring should be required in § 290.105(b)(5) for projects involving the use of more than 10,000 tons of ash at abandoned coal surface mine sites. (956, 971)

Response:

The Department agrees. Provisions have been added to the final-form regulations to require water quality monitoring for projects that involve more than 10,000 tons of coal ash per acre or more than 100,000 tons of coal ash in total per project.

134. Comment:

Section 290.105(b)(6) allows sizeable projects (up to 99,999 tons) to occur without any public notice. Furthermore it fails to explain public input procedures for use of coal ash in unlimited volumes in abandoned mine reclamation sites which input should be emphasized by this rule. Without a requirement for a permit, the process for soliciting input of the surrounding community and incorporating that input into the decision to use coal ash at an abandoned mine site should be explained in this regulation. (971)

Response:

In order to clarify the requirements of § 290.105, the proposed § 290.105(b)(6) has been moved to § 290.105(c) and modified in the final-form regulations. This subsection establishes that public notice will be required when coal ash used at abandoned coal surface mine sites involves the use of more than 10,000 tons of coal ash per acre on a project or more than 100,000 tons of coal ash in total at any project. This subsection has been revised to make publication a condition of any contract award for contracts authorizing beneficial use of coal ash as part of reclamation work at abandoned coal surface mine sites. The subsection also expressly allows the Department to require public notice for projects involving lesser amounts of coal ash if the Department determines that the proposed beneficial use activities are of significant interest to the public or site conditions warrant.

Also, § 290.105(c) has been modified to require public notice to the municipality in which the project is located. In addition § 290.105(e) establishes that the Department will publish a summary of each contract in the *Pennsylvania Bulletin*. In combination, the Department believes these sections provide for adequate public notice.

135. Comment:

The 24 hour limit in § 290.105(e)(3) is too restrictive and does not consider operational considerations (e.g. weather) or for weekends/holidays. (1095)

Response:

It is not unreasonable for an operator to maintain the site by spreading the coal ash promptly. This avoids potential problems of airborne ash which is a nuisance and is, generally, avoidable. If ash is being delivered to the site, personnel should be available at the same time to place it properly.

136. Comment:

Section 290.105(e)(3) includes compaction specifications for coal ash at abandoned coal surface mining sites. Overly compacting materials on surface mines has prevented re-growth of the native hardwood forest. Improved rooting conditions would benefit native grass plantings. We recommend DEP consult with surface mine restoration experts to

develop protective compaction specifications that will still enable tree root growth. (1121)

Response:

Compaction is needed to provide stability and reduce infiltration of precipitation. Compacted ash is not the rooting medium. The rooting zone will be established at the surface.

137. Comment:

Section 290.105(e)(9)(i) should not sanction the use of coal ash in the construction of a stream channel. DEP should present long term monitoring data demonstrating the success from such an application without adverse impacts to water quality before it is encouraged by this rule. (971)

Section 290.105(e)(9)(i) permits the use of coal ash as an aquatard as part of an engineered stream restoration. The Service opposes the placement of coal ash within a stream channel restoration. Coal ash is more likely to leach contaminants when it is in frequent contact with water. Other materials without the risk of water or sediment contamination are available for use in streams. (1121)

Response:

The regulation has been revised to clearly prohibit the use of coal ash in construction of a stream channel.

138. Comment:

The lack of monitoring marginalizes the requirements in § 290.105(e)(10). (971)

Response:

When used as a soil substitute or soil additive, the loading rates will limit the amount of the coal ash that can be placed at a site to an amount below the threshold quantity where the Department requires water quality monitoring. If, however, that quantity is exceeded, water quality monitoring would be required. Coal ash must also meet the leaching standards in the certification criteria.

139. Comment:

The biologically-active zone is usually twenty four inches. § 290.105(e)(6) requires the coal ash to be covered by twelve inches of soil. This would result in direct exposure of plant roots, soil organisms and burrowing animals to contaminants in the coal ash. To prevent toxic effects in plants and animals that migrate into the restored areas, a

minimum of twenty four inches of clean soil should be placed over the coal ash fill. (1121)

Response:

This is not feasible in most cases because of the unavailability of sufficient quantities of soil. Twelve inches is the minimum standard, but typically higher amounts are used where suitable material is available.

§ 290.106

140. Comment:

Coal ash uses in § 290.106(a) may be incomplete. Other uses that may be required in the list are use of coal ash as backfill in active and abandoned mines. (972)

Response:

Use in reclamation of active and abandoned mines is covered in §§ 290.104 and 290.105.

141. Comment:

Some coal ashes that are generated can be high in unburned carbon and can be beneficially used (combusted) as a fuel. The commentator suggested making this a new “other” use of coal ash in § 290.106(b) and recommended a minimum heating value of 5000 BTU per pound. (1095)

Response:

The Department agrees with this suggestion. The use of coal ash as fuel has been added to the final-form regulations.

142. Comment:

While some flexibility is provided for certain uses (§ 290.106(b)(1)-(6) uses may have waived or modified requirements), it is not clear how waived or modified requirements would be provided, whether on a use basis, job basis, source basis or other. It is suggested that specific trigger tonnages be developed (or waived, as appropriate) for all uses in § 290.106(b) to eliminate uncertainties. (972)

Response:

Chemical analysis is required for uses in §290.106(a)(3) and (7) because those uses typically require a large volume of material.

143. Comment:

The description in § 290.106(b)(1) needs to be expanded to include use of coal ash as an ingredient in the manufacture of cement and to provide clarification that the term “concrete” includes flowable fill. (1095)

Response:

The Department agrees with this suggestion. Section 290.106(a)(1) has been modified in the final-form regulations to include the use of coal ash in the manufacture of cement. The manufacture of concrete includes flowable fill.

144. Comment:

These uses in § 290.106(b)(6)-(7) raise concerns about water pollution. In both scenarios, the application will likely involve constant contact of coal ash with water, the scenario that heightens the potential for contamination of water. Use of coal ash as a drainage material is a scenario for generating ash leachate. The regulation should provide a more substantive basis for waiving all permit requirements for such an application than simply, “an evaluation of the pH” and “a chemical analysis of the coal ash.” Similarly, there should be a more substantive basis than an assessment of pH, before all permitting requirements are waived for the use of coal ash in mine subsidence control, mine fire control and mine sealing. At a minimum, this regulation should require monitoring of both of these applications, regular reporting of the monitoring data to DEP and regular assessment of the impacts of such applications so that adverse impacts are promptly addressed. (971)

Response:

These uses are allowed under the existing regulations. No change has been made since there is no evidence to suggest these uses are causing pollution. Drainage material was removed as a beneficial use. The pH requirement has been removed from § 290.106(a)(7)(ii). A provision has been added at § 290.106(a)(7)(iv) requiring the material to have a cementitious reaction after placement.

145. Comment:

Sections 290.106(b)(3)(i), 290.106(b)(6) and 290.106(b)(7)(i) require a person wishing to use coal ash for certain purposes to provide advance written notice to DEP before using the coal ash. How far in advance must this notice be given? (1120)

Response:

The advance notice requirements in these subsections were not changed from the advance notice requirements in current regulations. Since Department approval is not required in these subsections prior to beneficial use, it is only necessary to provide the notice prior to commencement of the beneficial use.

146. Comment:

Section 290.106(b)(4) requires bottom ash or boiler slag used as antiskid or road surface preparation material to be consistent with “Department of Transportation specifications or other applicable specifications.” This requirement is vague. The final-form regulation should specify what specifications would be acceptable. (1120)

Response:

This is not a change from the current regulations and has not been a problem for the Department or the regulated community.

147. Comment:

The restriction of complying with Department of Transportation specifications should only apply to the use of this material when it is placed on public roads. (1095)

Response:

The PA Department of Transportation specifications may also apply in other applications, such as when a private road or parking lot is adjacent to a public road. Contractors are responsible to know when PA Department of Transportation specifications apply and when they do not. This is not a change from current regulations and is not expected to cause difficulties for the regulated community.

148. Comment:

Natural gas exploration in PA has created challenges for treating and discharging waters from this activity. Beneficially using fly ash to stabilize this material allows this material to be managed in landfills permitted to handle such materials. (1095)

Response:

This commentator’s suggestion is beyond the scope of this regulatory initiative.

§ 290.201

149. Comment:

Once a request for coal ash certification is received, how long will DEP have to either certify the coal ash or reject it? (1120)

Response:

There is no regulatory requirement specified for how quickly the review process takes prior to a decision. Typically the initial review is conducted within two weeks of receipt. A final Department decision is based on quality of information submitted, complexity of the project, and environmental considerations.

150. Comment:

The term “waste classification standard” is vague and should be defined. (945)

Response:

The definition of “waste classification standard” is found in 25 Pa. Code § 287.1, so it has not been repeated in Chapter 290.

151. Comment:

The maximum acceptable levels for certification in § 290.201(a)(1)(i) and (ii) should clearly be posted in this section. Without reading guidance documents, which DEP is now proposing as regulation, the reader has no idea what standards apply. (959)

Section 290.201(a)(1) should be absolute numbers, not dependent on a basis number. While current multipliers of basis numbers produce rational targets for maximum concentrations, they may not always do so (e.g., fluoride). Using an absolute number will provide DEP with an evaluation period to examine changes prior to establishment in the rule. (972)

Response:

The Department has chosen to use this approach to ensure that any changes in standards are immediately enforceable. The maximum acceptable levels for certification are included on the form used to require certification and to submit ash monitoring results. Notice of changes will be posted on the Department website to be easily accessible. Because the background data for fluoride is scant, the limit for fluoride was deferred while the Department studies the issue.

152. Comment:

As metals are known toxins and more likely to migrate into groundwater than organic contaminants, it is unclear why acceptable levels would be set at 25 times standards based on the maximum contaminant level goal (MCLG). In contrast, for nonmetals contaminants, which may be less likely to migrate, the MCLG must be met. We recommend that all contaminants be held to the waste classification standard. (1121)

Response:

The 25-times factor for metals is based on fate and transport modeling, which considers both dilution and attenuation in the eight-foot vertical zone between the coal ash placement area and groundwater. Non-metals are less likely to be attenuated (diminished) in this zone. More than 20 years of groundwater data supports that the use of the 25-times factor is appropriate and protective.

153. Comment:

The pH of coal ash for structural fill should also be held to the minimum of 7.0 in § 290.201(a)(2). (1121)

Response:

The pH requirements for coal ash used as structural fill are found in § 290.102(d)(1). The minimum pH for structural fill has been changed to 7.0 in the final-form regulations.

154. Comment:

We suggest language be added to § 290.201(a)(1)(ii) to allow DEP to approve contaminants, other than metals and cations, that leach up to ten times the waste classification standard. The language would be similar to what is allowed for unlined residual waste monofills in § 288.132(a)(2). (962, 1095)

Response:

The Department has reviewed over 1000 samples of coal ash submitted with regards to mine reclamation in Pennsylvania over the past 10 or more years. Other than sulfate, the Department finds no justification for allowing contaminants other than metals and cations to leach greater than the waste classification standard. The final-form regulations allow sulfate to leach up to ten times the waste classification standard. With the exception of fluoride, other anions are restricted to leach no more than their waste classification standards.

155. Comment:

“Qualification may be granted for use of coal ash not meeting all the appropriate standards in subsection (a) if the following conditions are met:” § 290.201(b)(2): “Only standards based on secondary MCLs (aluminum, chloride, iron, manganese, sulfate, silver, and zinc) are exceeded. All other limits shall be met.” The statement should be revised in such a manner to allow primary standards to be exceeded, only after (and to DEP’s satisfaction) a complete risk-based analysis has been completed for human and environmental receptors (or other approved method) and this analysis indicates the exceedence will have no detrimental effects. (Similar to methods utilized in the Act 2 program). (1)

Response:

The exception for secondary MCLs (other than sulfate) has been removed from the final-form regulations.

156. Comment:

Commentator opposes the request that iron and manganese be dropped from the monitoring parameters for ash due to their health implications. (927)

Response:

The Department did not propose that iron and manganese be dropped. They remain as ash testing parameters.

157. Comment:

Selenium is an insidious toxic element. Its solubility increases with increasing pH. (950)

Response:

Due to the leaching characteristics of selenium, and to assure that it is not a problem, the limit has been established at 0.5 mg/L, which is ten times the waste classification standard. Using the fate and transport model (MCL x 25) would result in a value of 1.25 mg/L. DEP in the past has used 1.0 mg/L because that is the cutoff for selenium being listed as hazardous using the TCLP method. Making the leaching limit 0.5 mg/L is consistent with other "RCRA 8 metals" where no leaching parameter is more than 0.5 times the hazardous waste number.

Actual selenium leachate concentrations for Northern Appalachian coal ashes is routinely less than 0.08 mg/L, so lowering the limit likely will have little or no effect on Pennsylvania derived coal ash. It may prevent the beneficial use of some coal ashes from out of the country, which can leach selenium at over 1.0 mg/L.

158. Comment:

Excessive levels of iron, manganese, sulfate and chloride can also degrade water supplies. The regulation should outline in § 290.201(b)(2)-(3) substantive information that the operator shall provide to demonstrate that the use of coal ash leaching high levels of these parameters will not adversely impact surface water or groundwater. Otherwise, this language is a loophole that will allow for arbitrary decisions not supported by the weight of credible, scientific evidence available. (971)

The regulations should allow DEP to certify coal ash that exceeds certification standards based on secondary MCLs for use at mine sites where applicants can demonstrate that any potential increase of those constituents in groundwater is inconsequential, regardless of baseline levels. (962, 1113)

The provisions in § 290.201(b)(1) should not be limited to “specified mine site(s)” and in § 290.201(b)(3) to “mine site operators.” The commentator suggests changing these to “the specified site” and “site operator.” (1095)

Under § 290.201(b)(3), DEP should be able to approve those coal ashes that exceed the secondary MCLs, provided the operator or generator can demonstrate that any potential increase in concentrations of constituents in surface and groundwater would be inconsequential, regardless of baseline levels. The commentator provided suggested language which replaces “not adversely impact” with “have inconsequential effects” and drops the requirement that the use of the coal ash will achieve and overall benefit in groundwater quality. (1095)

There should be a provision in the proposed certification exemptions for ashes that meet the primary MCL but not the secondary MCL parameters. (1117)

The criteria are not listed in § 290.201(b)(3) for determining groundwater, and surface water will not be contaminated. Based on the NAS findings, prediction of the leaching potential is not likely to be reliable as it can take decades before any leaching would be evident. Since demonstrating groundwater and surface water protection with high confidence is not currently feasible, exemptions should not be granted. (1120)

Under § 290.201(b)(2), a certification exception may be granted if only the secondary MCLs are exceeded. These contaminants are likely to migrate into groundwater and, ultimately, surface waters. Recent stream monitoring near coal mines has demonstrated that these ions can reach concentrations that are collectively toxic to aquatic life (Pond et al., 2008). The coal ash regulations should require that these secondary MCLs be met to reduce risks to aquatic life. (1121)

Response:

The exception for secondary MCLs (other than sulfate) has been removed from the final-form regulations.

159. Comment:

Only standards based on secondary MCLs may be exceeded for certification in § 290.201(b)(2). Fluoride should also be included as one of these parameters. (945)

Response:

The Department has chosen to use this approach to ensure that any changes in standards are immediately enforceable. The maximum acceptable levels for certification are included on the form used to require certification and to submit ash monitoring results. Notice of changes will be posted on the Department website to be easily accessible.

Because the background data for fluoride is scant, the limit for fluoride was deferred while the Department studies the issue.

160. Comment:

Constituents having secondary MCLs may change over time. Therefore, it is unnecessary to list specific constituents. (1095)

Response:

A list of secondary MCLs has been deleted from the final-form regulations.

161. Comment:

Section 290.201(c)(3). There are numerous “pollution control processes” at a generating station whose operation does not impact the chemical or physical characteristics of the ash. The commentator suggests limiting this requirement to “air pollution control processes.” (1095)

Response:

The wording has been changed to “pollution control processes that impact the chemical characteristics or physical properties of the ash” in the final-form regulations.

162. Comment:

There are no provisions for the outlet of new coal ash sources from new coal ash generators in § 290.201(c)(5). This would hinder construction of new coal projects in PA. Provisions should be included to allow for the temporary placement of coal ash from new generators for a year to allow for obtaining the sample data needed for certification. (945)

Response:

The Department will not assume any ash source meets the criteria for beneficial use prior to receiving the data that supports that claim. The generator must dispose the ash in an approved manner until a demonstration can be made that it meets the criteria for beneficial use. Allowances for this temporary situation can be built into the plan for the project.

163. Comment:

The requirement for chemical analysis on four representative samples spaced over a 2-6 month period in § 290.301(c)(5) is an improvement over current characterization requirements of a single sample. (971)

Response:

The Department acknowledges this comment.

164. Comment:

Why are these tests being required for coal ash qualification if the coal ash is not being utilized for low permeability or acid neutralization? (1, 1120)

Clarification should be added that these requirements are only necessary when the coal use being requested includes low permeability or acid neutralization. (1)

Are all of the tests specified in § 290.201(c) required to obtain coal ash certification? If a designated use is proposed, some of the parameters will not have an effect on the intended use. Are all of the unnecessary tests required by § 290.201(e) needed every three months? (959)

The analysis of permeability in § 290.201(c)(7) should only be required when the coal ash is to be used as a low permeability material. (962)

Certification testing required under § 290.201(c)(7)-(8) for permeability and neutralization potential may not be applicable to ordinary placement as backfill. Also, certification testing under § 290.201(c)(6), Proctor test, may not be necessary so much for certification as use at placement sites for compaction effort validation. It is suggested that certification testing requirements be refined to reflect individual uses. (972)

The analyses required for dry density permeability and neutralization potential should only be required for beneficial uses where such data is applicable. (1095)

Response:

Hydraulic conductivity data provides information to evaluate the hydrologic properties of ash in the context of the mine site as a whole, regardless of whether it is being used as a low permeability material. The information is consistent with requirements of Chapters 87 and 88, see § 87.69 and § 88.49 (pertaining to protection of hydrologic balance) for example. Neutralization potential is a measure of the acid-neutralizing ability of the ash. This is an important property of ash for evaluation of the long-term ability of an ash to maintain a given pH, regardless of whether it is being used for alkaline addition. This compliments the requirements of Chapters 87 and 88, see § 87.44 and § 88.24, dealing with characterizing mine site materials.

165. Comment:

The chemical characterization methods required by current regulations were developed for other residuals and wastes and are simply chemically inappropriate for characterization of coal ash and related materials. This is, in fact, in the EPA manual

(SW-846) where the currently most often used methods (TCLP and 3050) are documented. The SPLP accepted in PA is even less adequate. (950)

Response:

The Synthetic Precipitation Leaching Procedure (SPLP or EPA Method 1312) is an appropriate method for determining leachability of coal ash. This model predicts what is likely to leach out of the ash when exposed to acidic rainfall.

The Toxicity Characteristic Leaching Procedure (TCLP or EPA Method 1311) predicts what can leach out of a waste when disposed in a municipal waste landfill. In the TCLP scenario, waste will be exposed to organic acids produced from decomposing garbage. TCLP is inappropriate for beneficial use of coal ash, which is why TCLP was rejected in favor of the SPLP method many years ago.

EPA Method 3050 is an acid digestion method used to determine the total amount of metals in a waste. While a digestion method such as Method 3050 can determine how much of each metal is present in a material, it cannot predict how much of each metal will leach out of coal ash under field conditions.

While the Department is open to adopting improved standard test methods, it will continue to require SPLP testing until another methodology has been developed and approved by EPA or the Department. The final-form regulations allow the Department to require a different leaching procedure than SPLP.

166. Comment:

The test that will be used to characterize coal ash leaching, SPLP, will not reliably predict the toxicity of the coal ash to be placed in mines. Continued reliance on the SPLP is inexplicable given the consensus reached by scientists that single-point lab leaching tests do not test ash under the range of leaching conditions encountered in the field. DEP should replace its reliance on the SPLP test in these regulations with a PA-specific protocol utilizing the Kosson Leaching Framework or another test approach that addresses the leaching factors just discussed in *Managing Coal Combustion Residues in Mines* (NRC). (971)

Response:

Department scientists and chemists have considered the information on the Kosson test. The Kosson test has several drawbacks: the process is not yet widely accepted, laboratories are not yet prepared to undertake this procedure, no interpretative framework has been provided by the researchers, and it would be prohibitively expensive. SPLP is a synthetic precipitation leaching procedure that simulates acid rain conditions that are typically found in Pennsylvania. If ash is kept out of the water table, the only water that will interact with the ash is rainwater. SPLP has proven to be an effective test for coal ash and protective of the environment in Pennsylvania.

While the Department is open to adopting improved standard test methods, it will continue to require SPLP testing until a more widespread acceptance and justification for the Kosson Framework (or any other procedure) is more widely accepted by the scientific community and has been well justified. The final-form regulations allow the Department to require a different leaching procedure than SPLP.

167. Comment:

Short-term single point batch leach tests do not provide an accurate prediction of minefilled coal ash leaching behavior. DEP has recognized the limitations of the very same leaching tests it now proposes to allow for characterization of coal ash. In a 2005 study (M. J. Menghini et al., “The Use of Leachate Data and Other Factors in Evaluating CCB’s For Placement At Coal Mine Sites In Pennsylvania,” p. 119 (2005)), DEP went on to identify several potentially more promising tests, including ANS 16.1, the MCC1 leach test, the MCC-3S Agitated Powder Leach Test Method, and the Mine Water Leaching Procedure. These and other potential alternatives to inadequate short-term single point tests have received no consideration during this rulemaking. (969)

Response:

The Department disagrees that the 2005 report concluded that SPLP was inadequate to determine if a coal ash is suitable for use in mine reclamation. The report did not state that the other leaching procedures listed in the comment were “potentially more promising” than SPLP. SPLP is an appropriate method for determining leachability of coal ash.

168. Comment:

How will DEP determine what the exact monitoring requirements are for each generator of certified coal ash under § 290.201(e)? How will the generator be notified of what their specific monitoring requirements are? Can the requirements of this section be uniformly applied to all generators of coal ash seeking to beneficially use it? (1121)

Response:

The monitoring requirements are given in § 290.201(d). This section applies to only those generators of ash that are certified. Some other uses of coal ash do not require such approval (refer to § 290.106 (b)). The generators are notified by letter of these monitoring requirements upon approval of their certification request.

Approval of an ash source for a particular project has two components – ash approval and site approval. Ash approval is the certification process. Additional monitoring or performance requirements are given under each section particular to the intended use. An evaluation of site conditions to determine if any particular ash source is suitable is also under the determination of the Department.

169. Comment:

Section 290.201(e)(1) should be changed to have the sample analysis submitted on a quarterly basis with a submission deadline 30 days following the end of the quarter. (959)

Response:

The source generator is provided due dates for ash monitoring and submission deadlines with the approval letter for their source.

170. Comment:

Section 290.201(c) should be modified to apply only to non-cementitious application of coal ash to the land. (962, 1095)

Response:

The definition of coal ash does not differentiate between cementitious and non-cementitious ash and, therefore the certification does not.

171. Comment:

The language “nitrite” should be removed from § 290.201(c)(5)(i). (962)

Response:

Nitrite could be formed in processes used to reduce NO_x emissions, such as the practice of adding ammonia. There is an example in the scientific literature where nitrite in the groundwater was an issue at a coal ash site. Since nitrite has a primary (health-based) MCL, the requirement remains in the final-form regulations.

172. Comment:

A representative sample should only be required in § 290.201(e) when a significant change in operation occurs. (962)

Additional ash sampling should only be taken in the event that there is a significant change in operation of the combustion unit generating the coal ash or a significant change in the fuel source. (1095)

Response:

Natural variation in the coal chemical makeup and potential variation or changes in the combustion processes may result in variation in the quality of the ash produced. Regular

sampling is warranted to ensure the resultant coal ash continues to meet certification standards.

The final-form regulations have been modified to require collection of a representative sample for analysis whenever there is a change in operation of the combustion unit generating the coal ash or change in fuel source that would result in a significant increase in a coal ash chemical parameter or a change in physical properties that could adversely impact slope stability, compaction characteristics or site hydrology.

173. Comment:

What is the need for volume reporting? Ash can be compacted and the tonnage requirements in § 290.201(e)(3) would provide DEP with the required data. (1120)

Reporting requirements under § 290.201(e)(3) for coal ash dry tons on an annual basis are clearly needed and may be considered a reliable number. Requiring cubic yards would seem unreliable unless more specific reporting requirements are given. Coal ash loosely packed in a truck or rail car has quite a different volume from the same mass placed at a mine site. To determine cubic yards based on tonnages, Proctors, and density testing could be done, but it is just a mathematical exercise. For whatever purpose the cubic yardage information is intended, it should be the basis for the determination methods. (972)

Response:

Volume is used to track reclamation progress.

174. Comment:

In § 290.201(f), how would the person beneficially using the coal ash know if any information contained in the certification application by the generator has changed? What is the need for both parties to notify DEP of any changes? (1120)

Either party, but not both, should notify DEP. (1095)

Response:

The final-form regulations have been revised to delete the requirement in this section that the person beneficially using the coal ash must notify the Department of changes to the information filed in the certification application or of any evidence that the coal ash may not meet certification requirements. The notification requirement in this section is now limited to the coal ash generator.

§ 290.202

175. Comment:

In § 290.202(a)(2), the term “consistently” needs to be more clearly defined. What constitutes consistently exceed the criteria to an extent that it leads to revocation of certification is unclear. In addition, the physical or chemical characteristics that would make the coal ash unsuitable for beneficial use in § 290.201(a)(3) need to be clearly defined. (959)

Section 290.202(a)(2) appears to contradict the qualification standards outlined in § 290.201, which state that the limits for metals and cations at 25 times the waste classification standard “shall be met.” The use of the word “consistently” in this provision explicitly implies that maximum acceptable leachate levels for an ash can exceed any of the limits in the leach test at least several times before the qualification for that ash would be revoked. This word should be removed. (971)

The term “consistently” used in § 290.202(a)(2) is vague. It does not establish a binding standard that could be applied to all members of the regulated community. This provision should be clarified in the final-form regulation. (1120)

Response:

Section 290.201 describes the criteria applied to collected samples to establish consistency. If an ash is shown to exceed the levels during evaluation, then the ash is not suitable. The language “consistently exceed the certification criteria” has been dropped from the final-form regulations. The text has been revised to state that certification may be revoked if the coal ash exceeds the certification standards and the generator fails to make an acceptable demonstration as described in § 290.203. Regular monitoring, as required by § 290.202 will enable the operator to identify a sampling, handling or analysis error, or an anomalous event. These types of errors are not uncommon. Therefore, § 290.203 provides detailed procedures for demonstrating that a specific sample that exceeds certification standards not a typical representation of the coal ash, as well as time frames for making the demonstration.

176. Comment:

Section 290.202(c)(1) would prevent the beneficial use of a particular generator’s coal ash for at least three months. This is an excessive period to prevent reuse of the ash. (959)

Response:

This provision applies to a generator that had certification of their coal ash revoked. The generator is given the opportunity to demonstrate an error or outlier has occurred under § 290.203. If the ash is unsuitable, it cannot be used. If revocation is due to unsuitable chemical characteristics of the coal ash, then the Department would need to consider at least three months of new data to demonstrate that the chemical characteristics of the coal ash are again able to meet the certification requirements.

§ 290.203

177. Comment:

These provisions encourage generators of coal ash that readily leaches high levels of metals in short-term, single-condition lab leach tests to retest their ash until they have gathered enough results that meet qualification requirements to pass muster with DEP. The possibility that they are being encouraged by these provisions to readily disregard and not submit results that fail the test is overlooked. At 25 times drinking water standards, the maximum acceptable leachate concentrations allowed by these tests are already set above levels that would produce toxic impacts. Furthermore, the rule has no isolation requirements to keep such ash from contact with water. Yet, rather than encouraging generators to dispose of such ash at safer sites with liners and separation requirements, the language of § 290.203 openly encourages efforts to explain away toxic results. The language should be eliminated. Instead, the regulation should clearly require that failure of the test for any parameter one time will result in the immediate suspension of the beneficial use certification. If the generator chooses to test the ash a second time, the regulation should require split sampling of a second sample with an independent lab that does not have any business relationship with the generator or the mine operator. The exceedance of a leaching threshold a second time by either of the labs or an exceedance in a subsequent test by the generator should permanently disqualify the ash from mine placement. This prohibition should apply to the ash as long as it is being generated by the same combustion unit and comes from the same coal seam being mined as the fuel source. Changes to either the combustion unit or fuel source should enable the generator or mine operator to apply for a new qualification of the ash for mine placement. (971)

Response:

The Department has revised this section regarding the evidence needed to make the demonstration in order to retain the certification.

The Department disagrees that most if not all coal ash generated in PA is “toxic” or produces “toxic impacts.” Proper use of the term “toxic” refers to levels exceeding the toxicity characteristic regulatory levels, the RCRA standards. Ash that is beneficially used in PA is typically an order of magnitude or more below RCRA limits. Ash that is beneficially used in Pennsylvania is not “toxic” and has concentrations of metals well below that threshold.

Laboratories in PA are required to be accredited. Fraudulent submittals and manipulation of data would jeopardize their accreditation and could result in criminal prosecution. Sampling coal ash and water quality associated with coal ash sites is a small fraction of business for laboratories in PA and not worth the risk of forfeiting their business and professional careers. Additionally, fraud is highly improbable considering the amount of sampling that is required in a given time period. The Department will also sample the ash at times to confirm the results. The generator may be able to identify a problem with

the ash through additional sampling and assessment and be able to correct the problem expediently. One exceedance of the limits does not constitute certainty that the ash is unsuitable from that point on and should be banned. The Department has rejected and removed approval for sources in the past based on the reasonable criteria in these regulations.

Chapter 290, Subchapter D

178. Comment:

DEP recognizes that an integrated mining and beneficial placement of ash in a mine site as part of a reclamation and abatement program will result in changes to water quality, and has already established criteria to address variations in water quality without triggering assessment and remediation analysis. PCA requests that the existing Chapter 87, Subchapter F, and Chapter 88, Subchapter G, continue to be used as the regulatory basis for water quality monitoring for beneficial use of coal ash as part of a reclamation and abatement program. (948)

Response:

The beneficial use of coal ash is not regulated under those chapters. In this final-form rulemaking provisions have been made in § 290.305(c)(2) and § 290.304(a)(1) for consideration of load-based standards at remining sites.

179. Comment:

The need for assessment and abatement at a particular site should allow for consideration of whether an overall improvement in site conditions has occurred. (1117)

Response:

The purpose of the assessment and abatement requirements in Subchapter D is to prevent off-site degradation of water quality from the beneficial use of coal ash. If there is overall improvement in site conditions, this will be factored into the assessment as required in § 290.304.

§ 290.301

180. Comment:

What is a water quality monitoring plan? (1120)

Response:

A water quality monitoring plan provides the monitoring points and sampling procedures necessary to characterize the quality of ground and surface water beneath and adjacent to the site.

181. Comment:

How will the approval process work for water quality monitoring plans? Does a form need to be submitted? How soon before using coal ash must the application be filed? How long will DEP have to review the application? How will the applicant be notified of DEP's decision? The final-form regulation should address these questions. (1120)

Response:

A water quality monitoring plan is a standard requirement for many environmental permits. Policy and forms have been developed specific to each program to help applicants collect and submit the necessary information adequate for such a plan.

The process will work in a similar manner as in other Department programs. At mining activity sites, this plan will be implemented under the mining permit, which has a modular application, including modules specific to coal ash use. At an abandoned mine site, this plan will be part of the contract. For structural fill and soil substitute/soil amendment use, there is no permit or contract with the Department, so the water quality monitoring plan stands alone.

There is no specific time requirement prior to coal ash use before which the plan must be submitted for review and approval. However, the water quality monitoring plan must be approved prior to storage, placement or use of coal ash at the site. A year's worth of monitoring data must be in place before coal ash may be beneficially used. Generally, the time required for review will vary, depending primarily on the complexity of site geology, and staff workload.

182. Comment:

We ask the Board to explain in the preamble why the time frames in § 290.301 are appropriate and how the requirement will work with other DEP regulations. (1120)

Response:

Twelve months of background samples allows for the collection of a complete year of data, which will reflect seasonal variations. This approach allows for comparison with future monitoring results. This approach has worked well for establishing baseline conditions in the Remining Program (Chapter 87, Subchapter F and Chapter 88, Subchapter G).

Quarterly sampling during active placement is designed to capture seasonal variations, while limiting the cost of sampling. This has been the Bureau of Mining and

Reclamation's standard monitoring approach for other aspects of Pennsylvania's mining program and has worked effectively.

Regarding the 10 years of post-placement monitoring, comments from commentators ranged from there should be no regulations (and presumably no monitoring) to suggesting that 30 years should be required.

The National Academy of Sciences report published in 2006 provided little guidance on monitoring duration. The council acknowledged that "the committee could not resolve their concerns nor reach consensus on the duration of long-term groundwater monitoring..." Page 181 of the report provides insights into various opinions on this matter. "Some committee members believed that longer-term groundwater monitoring should be required in all cases and that release of the bond should be tied to such monitoring. Other committee members felt that there was insufficient evidence to require this in all cases. Some committee members also believed that the longer-term reclamation bond liability would be a significant deterrent to the use of CCRs in mine reclamation – a practice that the committee agrees can provide environmental benefits when managed properly."

The length of post-placement monitoring is based on Department observations and experience. Contaminant transport in groundwater in coal-bearing rocks and coal mine settings is normally detected in as few as two years and routinely within 5 years of reclamation. At the close of ash placement, some sites will have decades of water monitoring that occurred during the life of the operation. The first five years of post-ash placement require quarterly sampling. The second five years has a reduced frequency of one sample per year for a monitoring point. The reduced sample frequency is to reduce costs, but provide some longer-term data to assure that contamination does not occur over the long-term. Where there are indications of potential pollution problems developing, the Department can extend the length and increase the frequency of monitoring.

183. Comment:

The rules should require that pollutant levels are fully monitored surrounding the placement site. (5-90, 92-123, 125-251, 253-302, 304-338, 340-428, 430-446, 448-478, 480-503, 505-514, 516-574, 576-601, 603-904, 906-925)

Response:

The regulations require upgradient and downgradient groundwater monitoring, which characterizes the surface and groundwater flow to and from the placement site.

184. Comment:

The criteria for "material damage to the offsite hydrologic balance" that must be prevented, as well as the standards that trigger assessment and abatement of

contamination, should be explicitly identified as part of the water quality monitoring plan. (971)

Regulations should require that the monitoring plan to be submitted will include criteria that define “material damage to the offsite hydrologic balance” will be prevented when coal ash is used at a coal mine. Any violation of applicable surface water quality standards or groundwater standards in waters draining beyond the mine property boundary should be considered prohibited material damage to the offsite hydrologic balance. (956)

Response:

The term “material damage” is not used in these regulations. The definition for “materially damage the quantity and quality of water” is given under the federal statute for Surface Mining Reclamation and Enforcement (30 CFR § 701.5) in reference only to alluvial valleys and the capability of farming.

185. Comment:

Who/how will DEP determine what a “Background” standard is for any downgradient wells installed to meet these new regulations in areas where coal ash has already been placed? Furthermore, special conditions should be written in permits to acknowledge that wells were installed after ash placement started. (1)

Response:

It is impossible to collect data that never existed. Water quality impacts, should they occur, would be evaluated on available data and trends. In cases where additional wells are added after ash use has begun, the Department will consider various trends in the data through time to determine if there is a quantifiable effect occurring.

186. Comment:

The regulations need to recognize sites where ash has been previously placed and groundwater quality data has been collected. The operator may have historical data that can be used in a monitoring plan. (962, 1095)

If a provision is made for mine sites that have previously accepted ash – and the site is active after the adoption of these regulations – it is suggested that the baseline be established while ash continues to be placed at the site. (1095)

Response:

All relevant water quality and quantity data is used in the hydrologic or hydrogeologic evaluation.

187. Comment:

In all cases, the baseline to be established for each constituent will be the maximum dissolved value recorded from the downgradient monitoring point(s) during the baseline establishment monitoring period. (1095)

Response:

While the maximum value may be used, there are statistical tools that may be appropriate in establishing baseline values in some cases.

188. Comment:

Section 290.301(a) should be changed to clarify that the water quality monitoring plan be submitted and approved prior to the approval of any permit for coal ash placement. (971)

Response:

As suggested, the language has been changed in the final rulemaking. In addition, the citation to § 290.104 has been deleted, since it is covered under § 290.101(d).

189. Comment:

The requirement for upgradient groundwater monitoring proposed under §§ 290.301(a)(1) and 290.302(a)(1) should not apply to existing facilities. Upgradient monitoring associated with a pre-existing highly disturbed environment or inactive waste coal fuel removal/remediation provides no relevant information associated with the benefit or detriment to the overall hydrogeology associated with the operation. Further, it is widely understood that to the extent that there are increases in constituents being monitored, such increases occur during the actual disturbance of the waste coal mining and/or reprocessing while the material is being excavated and the site is open without regard to ash placement. (966)

Response:

Upgradient monitoring points should be unaffected by ash placement and thus still fulfill the purpose of an upgradient well, even if installed after coal ash placement has begun.

190. Comment:

The quality of upgradient groundwater is irrelevant to defining the baseline conditions related to work on seriously impacted waste coal remining and reclamation sites that will be utilizing ash for beneficial use in restoring the site. We request §§ 290.301(a)(1) and 290.302(a)(1) be modified to drop the requirement for upgradient monitoring as it relates to waste coal reclamation sites. (966)

Response:

While the coal ash should not impact groundwater upgradient to the placement site, there is a valid reason to monitor upgradient of the site, whenever possible. Water downgradient can show the impact of any leaching that occurs at the placement site. Upgradient monitoring can also provide data to demonstrate that contamination being detected downgradient was not due to the ash placement, but was occurring before the water reached the site. Monitoring points outside the area of hydrologic influence are useful for a variety of purposes besides indications of off-site pollution, such as helping to explain changes in quality or quantity that are seasonal and providing insights into water sampling collection or analytical errors.

191. Comment:

Baseline monitoring of ash sites and monitoring plans should be completed and subjected to DEP scrutiny *and* public input prior to project approvals or the issuance of mining permits involving ash placement. (956)

Response:

Public notification and comments are an integral part of the mining permit application process. Water quality monitoring plans and monitoring data are public information and can be reviewed by interested parties. Public participation is an integral part of the coal mine permit review process, as set forth in 25 Pa. Code Chapter 86, §§ 86.31, 86.32, 86.34, and 86.35. Section 290.104(e) also provides for public notification by the Department.

192. Comment:

The proposed § 290.301(a)(2) does not include abandoned mine sites under § 290.105. (4)

Response:

The final-form regulations clarify that water quality monitoring is required for abandoned mine lands where more than 10,000 tons of coal ash per acre or more than 1000,000 tons in total per project is beneficially used.

193. Comment:

The proposed regulations increase the minimum number of monthly background samples at each monitoring point from six months to twelve months. The six months of baseline sampling was derived based on a statistically valid approach developed by EPA. PCA believes this approach is still valid and requests the minimum monitoring be six months.

Further, PCA believes that all monitoring data obtained prior to the placement of coal ash at a mine site should be used to define pre-ash water quality. (948)

Response:

Seasonal variations impact water quality and can be important in understanding if changes to water quality is due to ash placement or merely reflects seasonal changes. The change from six months to twelve months background has already been made in the Departments' s interim guidance documents.

194. Comment:

Twelve months may be insufficient to establish a true baseline for the site, since there can be significant seasonal variations along with year-to-year variations in overall precipitation and temperature. Therefore, the baseline should be three to five years. The commentator suggests that the first twelve monthly samples is prior to placement of coal ash and that an additional two years of sampling after coal ash placement be part of the data used to establish the baseline. (1095)

Response:

The Department considers 12 monthly samples of pre-coal ash placement to be the acceptable standard.

195. Comment:

A frequency of no less than quarterly monitoring should be required during ash placement. Discretion to allow less than quarterly monitoring should be eliminated. (930, 932, 935, 938-940, 943, 946, 947, 951-953, 956, 970)

At least a year of monthly sampling should be required to collect enough baseline data to characterize water quality at ash sites before permits are issued. Discretion to allow less than a year of monthly sampling prior to permit approval should be eliminated. (930, 932, 935, 938-940, 943,946, 947, 951-953, 970)

In §§ 290.301(a)(2) and (3) “different number or frequency” should be replaced by “greater number or greater frequency.” (971)

Discretion to allow less than a year of monthly sampling and less than quarterly sampling frequency should be eliminated. (956)

Response:

The Department agrees with the commentators regarding removing the discretion to monitor less frequently in compliance with these sections. The language has been changed in the final-form regulations to remove the discretion.

196. Comment:

We understand the need for a minimum of twelve monthly background samples to be taken to define seasonal fluctuations in parameter concentrations due to variable precipitation, groundwater levels and surface water flows. However, variations in concentrations at mining sites will also be introduced due to activities associated with excavating old gob and culm banks. While a site is being excavated, temporary hydrologic impacts unrelated to coal ash placement are typical. A significant amount of activity will occur prior to ash placement and the water monitoring data during the pre-ash placement period is a critical part of the baseline against which monitoring data post-ash placement can be measured. We suggest modification of § 290.301(a)(2) to allow, in addition to the twelve samples needed for permit approval, samples collected before site development, during site development and during mining but prior to ash placement to be considered in defining a site's background water quality. (966)

Response:

The mine operator, ash generator and the Department consider all relevant data that is available in making sound scientific and compliance decisions. The person conducting the activity should provide all information necessary along with analyses to place the sampling results in context with the activity occurring at the site. In consideration of certain site conditions, the Department may require certain extra monitoring to determine the water quality changes in response to changing site conditions.

197. Comment:

Planning and development of waste coal fuel sites is a long process involving many technical and legal requirements. Adding another year to complete background monitoring is not necessary to the permitting process. For the purposes of expediting the permitting process, we suggest that DEP allow applications to be submitted prior to completion of twelve months of background sampling. DEP can withhold final issuance of a permit until the minimum twelve months of sampling is completed and submitted. (966)

Response:

The Department's mining program has allowed partial collection of baseline data (see Module 8.2 of the hydrology portion of permit applications) at time of permit submittal, with the requirement that all data be submitted prior to the permit issuance. A minimum of six months of baseline data is required for all mine permit applications. Therefore the additional background data, at the most, will increase the length of data gathering by six additional months.

198. Comment:

Section 290.301(g) requires quarterly water quality monitoring for five years after final placement or storage of coal ash and annual monitoring from the end of year five through year ten. Under Chapters 86 – 90, DEP is already required to ensure the site meets all reclamation requirements prior to a final bond release. The Phase II bonding period requires the bond to be in place for five years prior to release of the bond. PCA recommends that the timeframe for monitoring be tied to the Phase III bond release. (948)

The long term monitoring requirements in § 290.301(g) as proposed is confusing and may conflict with the bond release standards under SMCRA. Reclamation bonds extend for five years following Stage II site reclamation, which includes full reclamation and successful vegetation. It appears from the proposed rule that an additional five years of monitoring following final reclamation is required, therefore extending Stage III reclamation standards to ten years. The commentator suggested language to change water quality monitoring to five years following Stage II bond release. (966)

Our concern relating to bonding is that extending the bonding requirement will reduce the available cash to conduct our business. The current practice is to release part of the financial bond upon completion of the work. The proposed regulations require the entire bond to be held until the completion of the ten-year post-operational period. We agree that some money should be held during the post operation period, but the entire amount is excessive and will add a significant cost to the reclamation process. (1115)

Response:

This section applies to all beneficial use sites where water quality monitoring is required. For mining sites, a Stage III bond would be held until completion of monitoring, as it is under current program requirements.

199. Comment:

DEP offers no rational or scientific basis for the additional five years of monitoring beyond what is already prescribed by law. We believe the current testing and monitoring requirements are sufficient to protect the environment and public at large. (965, 1115)

Response:

Comments regarding the length of post-placement monitoring range from no regulation, which presumably is a recommendation for no monitoring, to regulations that require up to 30 year of monitoring.

The National Academy of Sciences report published in 2006 acknowledged that “the committee could not resolve their concerns nor reach consensus on the duration of long-term groundwater monitoring...” Page 181 of the report provides insights into their differences of opinions: "Some committee members believed that longer-term groundwater monitoring should be required in all cases and that release of the bond

should be tied to such monitoring. Other committee members felt that there was insufficient evidence to require this in all cases. Some committee members also believed that the longer-term reclamation bond liability would be a significant deterrent to the use of CCRs in mine reclamation – a practice that the committee agrees can provide environmental benefits when managed properly."

The first five years of post-ash placement require quarterly sampling. The second five years reflects a reduced frequency of one sample per year for each monitoring point. Where there are indications of potential pollution problems developing, the Department can extend the length and frequency of monitoring.

200. Comment:

The length of monitoring is definitely concerning to us. The additional monitoring will add \$163,800 to each monitoring point. (959)

Response:

The Department recognizes that there are increased costs. Based on existing laboratory costs, the Department has calculated the additional sampling cost per sample point per year is about \$725, which is minimal in the interest of environmental protection.

201. Comment:

A minimum of ten years of post-closure groundwater monitoring at all mines where CCW is disposed should be required. (1060, 1094)

Response:

The Department agrees.

202. Comment:

According to the NAS, leaching of contaminants may not occur for decades. Coal ash treated to raise the pH would not begin to leach until the lime or other amendment was exhausted by acid precipitation. We recommend that the minimum monitoring period be set at 20 years. (1121)

Response:

Water quality monitoring begins upon commencement of coal ash placement and continues through the life of the project. Water quality monitoring prior to placement, during placement and the extension to 10 years post-placement provide sufficient data to verify the effectiveness of the beneficial use of coal ash.

There are mines in PA that have been utilizing coal ash safely for 25 years. Many of the sites will have had ash placement for a decade or more at time of closure, and placement of millions of tons of ash; thus at the time of closure there will already be a large body of data from water monitoring under ash placement conditions. Department observations concerning mine site hydrology indicate that water quality impacts from mining typically occur within two to three years after mine reclamation, therefore a ten year monitoring period post-placement is appropriate.

203. Comment:

These sites should be monitored quarterly for at least 30 years after ash placement is finished. (5-90, 92-123, 125-251, 253-302, 304-338, 340-428, 430-446, 448-478, 480-503, 505-514, 516-574, 576-601, 603-904, 906-925, 930, 932, 935, 938-940, 943, 946, 947, 951-953, 956, 970, 1102)

At least thirty years of quarterly monitoring should be required after ash placement is finished. Monitoring should continue for a period long enough to differentiate contamination by ash from impacts of mining. (956)

Thirty years is the duration of monitoring after closure at more hydrologically stable and less fractured municipal solid waste landfills. Thus, 30 years of post placement monitoring at a frequency that will detect if contamination is occurring is needed at mine ash sites. (971)

While the NAS committee did not recommend a specific post-closure groundwater monitoring duration, they did suggest that fewer than ten years is insufficient and more than ten years is necessary to accurately characterize coal ash behavior. The NAS report notes that “changes in groundwater quality can take several decades” and that a “longer field monitoring period will likely be needed in some situations. Further, “In cases where there was a large distance between the location of (coal combustion residuals) and monitoring wells, monitoring over a limited time frame (e.g., <10 years) might not detect any problem, even if one existed. PA municipal solid waste landfills are typically subject to a 30-year post-closure monitoring requirement. The same 30-year duration, if not longer, must be required at coal ash placement sites, particularly given that municipal solid waste is relatively benign in comparison to coal ash and landfills are more hydrologically stable than complex mine environments. (969)

Response:

Water quality monitoring begins upon commencement of coal ash placement and continues through the life of the project. Water quality monitoring prior to placement, during placement and the extension to 10 years post-placement provide sufficient data to verify the effectiveness of the beneficial use of coal ash.

There are mines in PA that have been utilizing coal ash safely for 25 years. Many of the sites will have had ash placement for a decade or more at time of closure, and placement

of millions of tons of ash; thus at the time of closure there will already be a large body of data from water monitoring under ash placement conditions. Department observations concerning mine site hydrology indicate that water quality impacts from mining typically occur within two to three years after mine reclamation, therefore a ten year monitoring period post-placement is appropriate.

§ 290.302

204. Comment:

The term monitoring “well” should be changed to monitoring “point” in §§ 290.302(a)(1) and § 290.302(b). The number of monitoring points should be determined on a site-by-site basis. (962)

The monitoring points in §§ 209.302(a)(1) and (b) are not required to be “wells.” (1095)

Response:

The term has been changed in the final-form regulations.

205. Comment:

Given the complexities of hydraulic flow patterns in PA coal mine areas, monitoring wells that are not placed in close proximity to the preferred flow paths on such sites will not identify pollution events that would require abatement. My experience has indicated that monitoring well locations are currently determined by cursory examination of local hydrology and practical convenience for well drillers or the ash facility owners, not identification of the preferred flow paths for ash contacting waters. The proposed regulation does not appear to address this issue. (950)

Response:

Section 290.302 contains standards for monitoring well locations which have been proven successful in monitoring other types of facilities under the residual waste regulations. Coal mine permits will have to meet the monitoring requirements of Chapter 290 and the appropriate mining regulations.

206. Comment:

Section 290.302(a)(1) indicates that: “At least one monitoring well at a point hydraulically upgradient from the coal ash placement area in the direction of increasing static head that is capable of providing representative data of groundwater not affected by placement of coal ash, except when the coal ash placement area occupies the most upgradient position in the flow system.” This exception should be revised to indicate: “except when the coal ash placement area occupies the most upgradient position in the

flow system or it can be demonstrated that no additional outside influences upgradient of the site will require an upgradient monitoring point.” (1)

Response:

The Department does not agree that it can be demonstrated that no outside influences upgradient of the site will occur.

207. Comment:

Section 290.302(a)(1) fails to ensure or allow for the establishment of a functional upgradient monitoring point. Water at the mine site that is affected by mining but not ash placement must be monitored. Otherwise, when contaminant increases occur at any of the downgradient points, DEP will lack data that will enable it to understand, with a reasonable degree of confidence, the degree to which the ash is contributing to the problem. This loophole should be eliminated. Ash placement should never truncate the capability of the monitoring necessary to protect water supplies. (956, 971)

Up-gradient monitoring that measures the effects of mining without ash placement should always be required. (956)

Response:

The Department disagrees. In some situations it may not be practical or possible to site upgradient wells outside of the coal ash placement area. The Department can use other comparative sampling results, such as background data to evaluate water quality in these cases.

208. Comment:

Upgradient and downgradient monitoring points should be required at all coal ash placement sites – absolutely no exceptions. (930, 932, 935, 938-940, 943, 946, 947, 951-953, 970)

Response:

The Department disagrees. Downgradient monitoring points are required on all placement sites. In some situations it may not be practical or possible to site upgradient wells outside of the coal ash placement area. The Department can use other comparative sampling results, such as background data to evaluate water quality in these cases.

209. Comment:

The first two sentences of § 290.302(a)(2) should be deleted and replaced with the following: “The number of downgradient monitoring points and their locations will depend upon the configuration of the coal ash placement area, the volume of coal ash

placed, the size of the ash placement area, and the hydrogeologic conditions at the site”. The commentator notes that the Pennsylvania Residual Waste Regulations normally require a minimum of three downgradient monitoring wells for the permitting of residual waste disposal facilities. However, it is stressed that the “quality” of the downgradient monitoring wells (i.e. proper placement within the target monitoring zone) is the more important factor than the “quantity” of downgradient monitoring wells. For example, in the anthracite region of Pennsylvania, the majority of coal ash placement sites are abandoned mine lands located directly above “mine pool” groundwater systems. These systems are dominated by “conduit” or “channelized” groundwater flow paths created by past deep mining activities. Therefore, these types of groundwater flow systems normally exhibit quite different characteristics than the types of groundwater flow systems encountered under the majority of permitted residual waste disposal facilities in Pennsylvania. In this regard, one well, if properly placed within the dominant flow path of the mine pool system, can detect contamination as efficiently as three wells that have been placed to simply satisfy a quantity requirement.

At the same time, it is acknowledged that some coal ash placement sites are underlain by mine pool flow systems that contain more than one dominant flow path, and as such, additional downgradient wells will be required at these types of sites.

Finally, a concern arises in that DEP regulatory staff will require three downgradient wells to be installed simply to satisfy the regulation even if it can be shown to the department’s satisfaction that less than three wells can adequately monitor groundwater conditions downgradient of the site. (1)

Section 290.302(a)(2) increases the number of downgradient monitoring points from two to three. DEP has not provided enough justification for the random increase in monitoring points. We believe the number of downgradient monitoring points should be one for each downgradient direction of groundwater flow. (948)

While the preamble to the proposed regulations infers that on a case-by-case basis, a beneficial use site may have less than three downgradient monitoring points, § 290.302(a)(2) clearly states that “at least” three will always be required. This section does not provide any exception to the rule. This section should be revised to allow a case-by-case determination of the required number of downgradient monitoring points. (4)

The requirement in § 290.302(a)(2) for three downgradient monitoring wells is too stringent and prescriptive. The number of downgradient wells should be based on the ability to correctly capture the characteristics of the downgradient water. DEP should rewrite this section to mandate one and to allow for the discretion of more if needed. (945)

Response:

It is acknowledged that characteristics of each site are unique; however, a minimum number of points is necessary to avoid arbitrary choices and incorrect assumptions by the applicant that, perhaps, only one point is needed. A single monitoring point does not provide a sufficient comparison. A comprehensive assessment of the water quality is a benefit to both the operator and the public.

210. Comment:

Section 290.302(a)(3) indicates the water quality monitoring system must include surface water monitoring points approved by DEP. There should not be a requirement for surface water monitoring points, especially if none are within any reasonable range of the ash placement site. This should be re-worded to include surface water monitoring points at the department's discretion, but again not be a requirement. (1)

Response:

The Department has modified the language in the final-form regulations such that surface monitoring points may be required for surface waters located on the site or within the adjacent area.

211. Comment:

Section 290.302(b)(3) indicates that wells are to be "Located within 200 feet of the coal ash placement area, except as necessary to comply with subsection (c), and located at the points of compliance." It should be noted that in some specific instances, it will not be probable to locate wells within 200 feet of the coal ash placement area, especially those instances in which abandoned underlying mine workings directly downgradient of the site may not be flooded, but are in fact "dry" thus making a well within this zone useless. This paragraph should be revised to allow discretion in where permittees will place the points based on approval by the Department. (1)

Section 290.302(b)(3) requires three downgradient wells be "within 200 feet of the coal ash placement area" without exception. This is not essential to insure protection of groundwater and surface water and, in many cases, will be impossible to achieve. In many cases due to previous mining, the hydrogeological structure beneath the abandoned sites has been completely affected and a single monitoring point is adequate to monitor the placement of coal ash. This section should be revised to eliminate or provide an exception to the 200 foot limit. (4)

Section 290.302(a)(1)-(3) requires monitoring wells to be located within 200 feet of the coal ash placement area. This requirement may result in monitoring wells being drilled within active mining areas and would, therefore, be disturbing active mining areas. PCA suggests the 200 foot limit be tied to the disturbed area from mining or coal ash placement operations. (948)

The requirement in § 290.302(b)(3) for three downgradient monitoring within 200 feet of the coal ash placement area is too stringent and prescriptive. I suggest replacing “within 200 feet” with “in close proximity.” (945)

At waste coal sites, placement of downgradient monitoring wells within 200 feet may place them in the mining or reprocessing area itself and is not feasible or advisable. The commentator suggested language for active mining sites that would require the downgradient monitoring wells to be located within 200 feet of the mining and coal ash placement area. (966)

Response:

The requirement that wells be located within 200 feet of coal ash placement has been changed to approve locations at a greater distance based on hydrology of the site.

212. Comment:

Water quality monitoring systems must include a monitoring well placed directly in minefilled coal ash to monitor local pore water and assess field leaching behavior. (969, 1121)

Response:

Ash is essentially nonporous and placed above the water table. A well placed in the ash fill would be effectively dry and prohibit collection of any pore water. No scientific justification has been presented that would indicate that this type of monitoring point would be useful. Also, equipment used to place and compact the coal ash can easily damage the well, effectively ending monitoring at that point. Water quality monitoring plans are implemented to monitor potential offsite groundwater and surface water resources. Monitoring pore water does not advance that objective.

§ 290.303

213. Comment:

Section 290.303(a)(4) indicates: “The well shall be filter-packed with chemically inert clean quartz sand, silica, or glass beads. The material shall be well-rounded and dimensionally stable.” Please note that this should be deleted as this can not be done with a well screen in which the target zone being monitored is within a mine void. Well screens placed in these types of settings normally utilize a grout basket placed at a level above the well screen. (1)

Response:

The final-form regulations allow the Department to exempt this requirement as appropriate.

§ 290.304

214. Comment:

The requirements for assessment contained in § 290.304 are quite costly. (966)

Response:

The Department acknowledges the comment.

215. Comment:

What is an assessment plan? We recommend that this term be defined. (1120)

Response:

The purpose and requirements of an assessment plan are described in § 290.304. Modifications to the language in this section have been made to further define and clarify the elements of an assessment plan.

216. Comment:

If a monitoring point shows higher levels of contaminants than prior to ash placement, it should trigger a requirement to investigate the causes of those increases. (5-90, 92-123, 125-251, 253-302, 304-338, 340-428, 430-446, 448-478, 480-503, 505-514, 516-574, 576-601, 603-904, 906-925, 930, 932, 935, 938-940, 943, 946, 947, 951-953, 970)

Response:

Section 290.304 has been changed to better define what would trigger assessment. Subsection 290.304(a)(1) has been changed to specify “statistically significant degradation.” Statistical evaluation of water quality monitoring data shall be made using one or more of the methods in 30 CFR § § 258.53(g) and (h).

217. Comment:

This section is ambiguous using words like “significant” and “activities unrelated to coal ash placement.” These terms are not defined in any way so that definitive quantitative judgments can be made or anticipated. (935, 945)

The anthracite coal mining region is littered with thousands of miles of underground tunnels creating enormous drainage areas. As a result, changes in hydrology can occur as a result of storm water diversions, wildcat sewers, combined sewer overflows leaking into the drainage system. Illegal dumping of trash can create short term and negative impacts on water quality in a particular area as well. Breaches in barrier pillars are

known to occur at times, major rain events, major snow melts could all result in increased flows and temporarily impact water at an ash placement site. We believe the regulations should include a better definition of “significant change” and how long of duration that “significant change” lasts before the need to submit and implement an assessment plan occurs. (965, 1115)

An assessment plan is required under § 290.304(a)(1) if a “significant change” in water quality has occurred. This standard is vague. The final-form regulation needs to contain a measurable standard. (1120)

Response:

Language has been added to § 290.304(a)(1) to specify “statistically significant,” which is a recognized term of art. Additionally, the statistical protocols have been defined as those accepted by EPA and codified at 40 CFR § 258.53(g) and (h).

218. Comment:

Section 290.304(a)(1) requires assessment if monitoring indicates a significant change is observed in the monitoring data. The groundwater at most of these sites has already been degraded by past activities. Since the placement of coal ash and reclamation of these sites may change the water quality to the benefit of the environment, the language should be modified to indicate the change must be statistically significant and detrimental. (945, 962, 1095)

Would an assessment plan be required if the “significant change” is a change that improved water quality? (1120)

If sufficient data exist, then an analysis should be used to evaluate the change. If insufficient data are available, then the qualitative criterion that will be used should be defined. (1121)

Response:

The Department agrees and has changed the final-form regulations to indicate the change would be detrimental to trigger an assessment plan. Collection of baseline data will assure sufficient data is available for a quantitative assessment. The addition of improved water quality monitoring networks and evaluation of water quality trends will assure detection of pollution, should it occur.

219. Comment:

The characteristics and relative risks posed by an individual constituent – coupled with the likelihood of a human receptor near a particular site – should dictate whether or not the concentration of that constituent should trigger the need to conduct an “assessment.” (1095)

Are the changes that would require an assessment plan tied to actual risks to the public health? (1120)

Response:

A statistically significant degradation and water quality will trigger an assessment plan that degradation is based on baseline water quality data collected for the site. This approach with baseline data is protective of public health and safety and the environment.

220. Comment:

We believe the overall intent of § 290.304(a)(1), (b)(2), (c)(1) and (d)-(f) is to define the impact from the placement of coal ash on water quality. We suggest adding “as a result of coal ash placement” in all these subsections. (948)

Response:

The Department does not agree the suggested language is needed, since § 290.304(b)(2) indicates an assessment is not required when it can be shown that the degradation was caused by activities unrelated to the placement of coal ash.

221. Comment:

The standard for triggering an assessment of water contamination remains unclear in the proposed regulations and thus does not assure that increases in contaminant concentrations beyond baseline concentrations will be investigated in time to prevent serious damage from occurring. A “significant change in the quality of groundwater or surface water from background levels” is too vague to reliably trigger corrective action requirements in time to prevent full-scale contamination of offsite water supplies. We recommend a standard keyed to the measurement of a concentration for an ash parameter at a downgradient ash monitoring point that exceeds the highest background concentration measured for that parameter at the same monitoring point. An exceedance of the highest background concentration at a downgradient ash monitoring point should be the simple trigger for requiring investigation of contaminant increases. Consequently, the residual waste regulations at § 288.256(a) require a groundwater assessment within 60 days of any PADEP or operator monitoring data indicating “groundwater degradation”—defined as monitoring that indicates a measurable increase in the concentration of one or more contaminants in groundwater above background levels. This process is more lenient than existing regulations that apply to coal ash landfills. (956, 971)

A groundwater assessment plan should be submitted within 60 days after a concentration of a toxic metal or other ash constituent exceeds the highest baseline concentration (pre-permit concentration) at a down-gradient monitoring point. The rules should require that confirmed measurements of pollutant levels at a down-gradient ash monitoring point that

are higher than levels prior to ash placement will trigger the requirement to investigate the causes of those increases in an “assessment plan.” (956)

The proposed regulations provide too much latitude in triggering assessment and abatement plans. (1102)

Response:

The term “groundwater degradation” as defined in § 287.1, applies to this chapter, since Chapter 290 is part of the residual waste regulations. Language has been added to § 290.304(a)(1) to refer to statistically significant degradation and references federal guidelines for statistical methods. The Department retains the ability to use professional discretion in evaluating monitoring data, such as spotting trends of the groundwater where the constituents do not yet exceed the highest baseline measurement but a problem may be occurring.

222. Comment:

The studies associated with the risks posed by various constituents in coal ash are reflected in drinking water standards and associated MCLs. Those constituents (e.g. mercury) that have been determined, through intensive study and evaluation, to have potential to present significant risks are assigned primary MCLs. Constituents not deemed to present such risks (e.g. iron) are given secondary MCLs. Act 2 reflects this very relationship. Therefore, the inorganic constituents found in Appendix A, Table 4 of Chapter 250 should dictate which of the monitored constituents be considered for completion of an assessment. (1095)

Response:

The Department does not agree that the assessment triggers should be limited to the inorganic constituents found in Appendix A, Table 4 or Chapter 250.

223. Comment:

Reference should be made to changes in specified constituents at one or more of the downgradient monitoring points. (1095)

Response:

The Department has provided in the regulations a list of all constituents to be monitored.

224. Comment:

The submission of the assessment plan should not be waived by resampling or demonstrations asserting seasonal variations or sources other than ash are responsible, if

a third such exceedance occurs above the highest baseline concentration for a parameter at the same down-gradient monitoring point. (956)

Response:

Section 290.304(b) only provides the “person” one opportunity to explain the exceedance as not related to coal ash placement prior to the requirement for an assessment. This section is not intended to provide multiple chances to explain high values.

225. Comment:

Section 290.304(b)(1) allows resampling within ten working days from obtaining the results from the initial sampling that indicate water degradation. An assessment plan is not required if the results of the resampling demonstrates to DEP within that ten working day period that water degradation has not occurred. Resampling of the well and surface water can take up to ten working days. The ten working days timeframe is too short and should be changed to twenty. (945)

Response:

The Department has used the ten working day timeframe for resampling and submitting the results successfully for other types of waste placement, such as at residual waste landfills. While ten working days is relatively short, the Department must proceed as though the degradation is real: therefore, expedient action is needed.

226. Comment:

Section 290.304(b)(1) gives DEP too much discretion to ignore data that may indicate a serious contamination problem. If a first concentration is measured at a monitoring point above the highest background concentrations and resampling obviates the requirement to conduct a groundwater assessment, the regulations should ensure that a subsequent measurement above the highest background concentration at the same monitoring point would trigger the need for a groundwater assessment without the option to resample. (971)

Response:

Resampling is standard scientific/investigative practice used to rule out human or lab error.

227. Comment:

We believe the limited number of days to respond is not sufficient to adequately review the data, corresponding site conditions and related variables and respond appropriately. (966)

Response:

The Department has used the ten working day timeframe for resampling and submitting the results and the twenty working day timeframe for demonstrating degradation is due to seasonal effect successfully for other types of waste placement, such as at residual waste landfills. While ten working days is relatively short, the Department must proceed as though the degradation is real: therefore, expedient action is needed.

228. Comment:

The requisite evidence to make such a demonstration should be further defined in § 290.304(b)(2). (971)

Response:

It is not possible to list all possible sources of data that could be used to make such a demonstration.

229. Comment:

How can an operator demonstrate within 20 days under § 290.304(b)(2) that the degradation was caused entirely by seasonal variations as seasonal variations occur over a three to four month period? (1121)

Response:

The 20-day time period for determining the degradation is caused by seasonal variations is found in other sections of the residual waste regulations and has been used successfully by the regulated community. An environmental professional that considers the data can refer to the site hydrology, the background data and precipitation data to make this judgment. If the problem is complicated, the Department can allow for reasonable extensions to be made after discussion occurs within the 20 days specified.

230. Comment:

Section 290.304(b)(2) allows a demonstration that sample results indicating water degradation are due to seasonal variation. An assessment plan is not required if this demonstration is made to DEP within that twenty working day period. Analysis and demonstration could require more than twenty working days. The twenty working days timeframe is too short and should be changed to forty. (945)

Response:

The Department has used the twenty working day timeframe for making this demonstration successfully for other types of waste placement, such as at residual waste

landfills. While twenty working days is relatively short, the Department must proceed as though the degradation is real: therefore, expedient action is needed.

231. Comment:

We are concerned that the word “entirely” in § 290.304(b)(2) could be interpreted in a way that creates an insurmountable burden of proof, since it is impossible to prove that there is zero influence of ash placement on the water quality. The commentator provided suggested language for § 290.304(b)(2) that would increase the time to demonstrate that the degradation was not caused by coal ash placement to 45 days, removes the word “entirely” and adds that an assessment would not have to be done if the degradation was caused “from mining operations or other influences unrelated to coal ash placement. (966)

Response:

The word “entirely” has been removed from this subsection. An assessment is required to determine the source of the degradation. If ash is not the cause, the assessment must suggest an alternative, reasonable cause supported by evidence.

The Department has used the twenty working day timeframe for making this demonstration successfully for other types of waste placement, such as at residual waste landfills. While twenty working days is relatively short, the Department must proceed as though the degradation is real: therefore, expedient action is needed.

232. Comment:

Section 290.304(c) requires the assessment plan to be prepared and sealed by a licensed professional geologist. Suggest that DEP determine if a “licensed professional geologist” is really needed for the assessment plan. (945)

Response:

The Department considers this work as the practice of geology as defined under Act 367. Therefore, a licensed individual is required.

233. Comment:

Section 290.304(c)(5) should also specify the material damage that is prohibited under the permit. (971)

Response:

The term “material damage” is not used in these regulations. The definition for “materially damage the quantity and quality of water” is given under the federal statute

for Surface Mining Reclamation and Enforcement (30 CFR § 701.5) in reference only to alluvial valleys and the capability of farming.

234. Comment:

Section 290.304(d) requires implementation of the assessment plan and completion of the assessment within six months, unless otherwise approved by DEP. The six month timeframe is too short. In order to conduct a proper assessment, more time is needed. The six months should be changed to twelve months. (945)

Response:

Assessment plans should be implemented as soon as possible so that, if on-site water degradation is found during the assessment, corrective measures can be taken before it becomes an off-site problem. DEP has used the six month timeframe successfully for other types of waste placement, such as at residual waste landfills. § 290.304(d) allows DEP to approve a longer timeframe in cases where the assessment cannot be completed in six months or a shorter timeframe where a more imminent threat exists.

235. Comment:

If surface water quality is degraded, then a biological assessment must be included in the assessment plan in accordance with the protocols of DEP's Office of Water Management, to determine if degraded water quality has impaired the aquatic community. (1121)

Response:

Biological assessment has been added to the final-form regulations.

§ 290.305

236. Comment:

These regulations should base all corrective action steps on clear standards that third parties such as effected [*sic*] citizens and communities can understand and enforce. (971)

Response:

While that is a very desirable goal, this is an unavoidably technical subject that requires scientific background and expertise to understand. The Department makes every effort to write rules and technical guidance in plain language so that it is clear and understandable. Technical guidance documents are written to further explain and clarify the regulations and are helpful with regards to interpreting how the regulations are applied. Guidance is subject to public comment as well.

237. Comment:

We believe the overall intent of § 290.305(a) is to define the impact from the placement of coal ash on water quality. We suggest adding “as a result of coal ash placement” in this subsection. (948)

Response:

It is understood that the impact is from coal ash so clarification in this section is not necessary.

238. Comment:

The language in § 290.305(a)(1) should be revised to indicate that the degradation must be statistically significant. (962, 1095)

Response:

The final regulations have been changed at § 290.304(a)(1) to state that a determination of degradation must be statistically significant.

239. Comment:

Section 290.305 must clearly emphasize that the abatement plan is prepared only in the event that statistically significant water quality degradation as a result of ash placement occurs. As written, the draft rule can be interpreted to broadly impute abatement obligations if the monitored constituents increase regardless of source. (966)

Response:

When an abatement standard is exceeded at a compliance point, the problem needs to be addressed, whether it is caused by ash placement, mining operations, or another activity at the site. If upgradient monitoring demonstrates that the contamination is coming from off-site, the Department will look elsewhere for the source and abatement.

240. Comment:

Section 290.305(a)(2) allows the entire assessment plan to be bypassed if an abatement standard is exceeded at one or more compliance points. A detailed assessment is needed to correctly determine if abatement is needed. § 290.305(a)(2) should be deleted. (945)

Response:

Exceedance of an abatement standard is a significant event and prompt action must be implemented to correct the situation.

241. Comment:

Section 290.305(b) requires the abatement plan to be prepared and sealed by a licensed professional geologist. Suggest that DEP determine if a “licensed professional geologist” is really needed for the abatement plan. (945)

Response:

The Department considers this work as the practice of geology as defined under Act 367. Therefore, a licensed individual is required.

242. Comment:

The abatement standards that are being met inside the permit area should be set at locations and concentrations that provide a margin of safety in ensuring that material damage beyond the permit boundary is avoided altogether. Therefore, if the only abatement standards for groundwater are located at the property boundary and based on drinking water standards or other health standards, this objective will not be accomplished. § 290.305(c) should require that the operator verify under the abatement plan that material damage as defined in the permit is not occurring in offsite groundwater or surface water or if such violation is occurring, that it has been permanently abated. Accordingly, the monitoring under the assessment and abatement plans must sample all offsite private and public water supplies and surface waters which have any reasonable potential to be impacted by the contamination. (971)

Response:

Permits for large-scale ash placement are not typically used in places where water supplies are nearby or where the background water quality meets drinking water standards. The standards here are reflective of the current standards for waste permits and they are appropriate. Compliance points in § 290.305(c) are set at 500 feet or the property boundary, whichever is closer. If the abatement standards are not exceeded at the compliance points, off-site public and private water supplies will be protected. In the event the abatement standards are exceeded at the compliance points, DEP would routinely require sampling of any water supplies that could potentially be impacted.

Mining regulations provide additional provisions for protection of the hydrologic balance, for example 25 Pa. Code Chapters 87 and 88, §§ 87.101 and 88.91, which pertain to bituminous and anthracite mines respectively. Evaluation of risks to water supplies is a routine and important part of the permit application review process. Water supplies that may be at risk are incorporated into the post-issuance monitoring program. The mining regulations provide protection of domestic and public water supplies (see 25 Pa. Code Chapters 87, 88, 89, and 90, §§ 87.47, 87.119, 88.27, 88.107, 88.207, 88.381, 89.145a, and 90.116a). Impacts to water supplies as a result of coal ash placement are unlikely. Most coal ash placement sites occur at abandoned mine sites with degraded groundwater and surface water resources that are not potable.

243. Comment:

The list of standards that must be met under § 290.305(c) does not include ambient water quality criteria for aquatic life, which would be the appropriate standards for surface water abatement. If the aquatic community were impaired, then biological stream monitoring must be used to demonstrate that abatement successfully restored the stream to reference conditions. (1121)

Response:

Biological monitoring and abatement for surface water have been added to the final-form regulations.

244. Comment:

Section 290.305(c)(1)-(3) requires compliance with abatement standards at 500 feet from the placement area or at the property boundary, whichever is closer. Compliance with abatement standards should apply at the property boundary alone. § 290.305(d) provides a waiver for the 500 feet for secondary contaminants. (945)

Response:

While one goal of abatement is to prevent degradation from reaching off-site locations, prevention of degradation from spreading across a large site is also important to future land use at the site.

245. Comment:

“Baseline” should be substituted for “background” in § 290.305(c)(2). (1095)

Response:

The term “background” is used in other, similar parts of the residual waste regulations and is retained here for consistency.

246. Comment:

Section 290.305(c)(3)(ii) references “Department guidelines for assessing the health risks of environmental pollutants.” A more specific reference would assist the regulated community in complying with the regulation. (1120)

Response:

This reference has been changed in the final-form regulations to indicate the health risk assessment portions of the Land Recycling Program Technical Guidance Manual (253-

0300-100) or other standard procedures commonly used in the environmental field to assess risk of environmental pollutants.

247. Comment:

When secondary MCLs or other non-health based standards in groundwater are exceeded, abatement requirements should not be triggered automatically, but should be considered in relationship to the overall environmental and public safety improvements resulting from the use of coal ash. (962, 1113)

Response:

When there is no primary MCL, the abatement standard is primarily developed based on health risks under § 290.305(c)(3).

248. Comment:

In § 290.305(d), a person should also be able to demonstrate that the degradation is inconsequential based on a previously approved demonstration under § 290.201(b)(3). (962)

Response:

The Department disagrees that exceedance from secondary MCLs is inconsequential. Section 290.201(b)(3) relates to certification standards of ash and is unrelated to § 290.305(d).

249. Comment:

Under the proposed section, compliance points are either at 500 feet from the perimeter of ash placement or the property boundary, whichever is closer. The abatement standards can be Statewide Health Standards (SHS), background standards, or risk-based standards which assume the presence of human receptors at the property boundary. These prescriptive requirements may grossly misrepresent actual health risks (if any) posed by the beneficial placement of ash and may result in expensive efforts that produce no tangible results. The requirement to abate already highly impaired water resources to drinking water or risk-based standards seems inappropriate, if not impossible. We strongly recommend modifying § 290.305 such that coal ash placement at mining sites with pre-existing discharges only be subject to the abatement standards based on background, the compliance point for standards based on SHS or primary MCLs be at the nearest residence or drinking water well or water supply intake, and the compliance point for risk-based standards be the nearest point of actual human receptors. (966)

Response:

In this case, the background standard reflects the pre-existing contamination. Abatement standards, such as those based on SHS, may be appropriate for contaminants that were not elevated due to the pre-existing contamination.

A goal in setting compliance points where they are in these regulations is to prevent on-site problems from becoming off-site problems. If the compliance points were made at the nearest water source or nearest point of human receptors, abatement would only occur after off-site harm to people did occur.

250. Comment:

Section 290.305 (d) should define “secondary contaminants” more clearly. These advisories should not be exceeded in water beyond the ash placement area by application of the secondary standard at a more distant compliance point beyond 500 feet from the ash placement area. (971)

Response:

The term “secondary contaminants” is defined in § 287.1. Since secondary contaminants have secondary MCLs, which are not health-based, it may be appropriate to approve a greater distance than 500 feet under some circumstances. For example, when the coal ash placement area owner’s property extends to a distance greater than 500 feet, the compliance point distance can be extended.

251. Comment:

We acknowledge that site conditions will dictate the appropriate abatement strategy. However, this chapter provides no guidance on successful abatement techniques. If hundreds of acres are to be filled over the next ten years, then it is prudent to know in advance that are available to curtail contaminant leaching from coal ash over large areas in a cost effective manner. In addition, the cost of curtailment techniques must be calculated in order to set bonds high enough to ensure funding if curtailment is needed. (1121)

Response:

There is a difference between guidance, which gives recommendations, and regulations, which give enforceable requirements. Putting “successful abatement techniques” into the final-form regulations would restrict the regulated community from using other acceptable techniques. Newer, improved techniques would not be able to be utilized. Since DEP reviews abatement plans and can make changes, specifying the abatement methods in regulation would unwisely limit the abatement options.

There is not a bond to cover abatement costs because contamination is not anticipated. In the unlikely event that monitoring indicates surface water or groundwater contamination is occurring, DEP can require financial assurance.

Subchapter E

252. Comment:

It is not clear what specifically triggers the storage requirements in this subchapter. Coal ash may not be used by smaller construction projects if the material must be stored in compliance with this subchapter. (1120)

Response:

Generally any storage of coal ash should follow the requirements of the subchapter, which are designed to minimize nuisances and degradation of surface water and groundwater. At most beneficial use sites, the coal ash will not be stored, as placement will occur soon after the ash arrives. However, temporary storage may occur, especially at some of the smaller project sites. The final-form regulations allow temporary storage up to 14 days in piles, as long as § 290.405(a) and (b) are met.

253. Comment:

The distinctions within this subchapter are confusing. For example, what is the difference between § 290.401(a) that affects “a person storing coal ash ...” and § 290.405(a) that affects “a person storing coal ash in piles ...”? What volume constitutes a pile? (1120)

Response:

Section 290.401(a) provides general requirements. Section 290.405(a) is purely an operational requirement.

The Department has not placed a minimum volume needed before a storage unit is considered to be a “pile.” The term “pile” describes the manner in which the coal ash is placed outside of a storage container, storage tank or impoundment and is not intended to indicate the volume of coal ash.

§ 290.401

254. Comment:

It is not clear in § 290.401(a) what is meant by requiring the person to “employ best engineering and design and construction practices.” If the design and operation practices must be certified by a registered professional engineer, the regulation should directly state that requirement. This subsection should be amended to provide a clear standard. (1120)

Response:

This language is standard language taken from the design and construction requirements for residual waste storage in § 299.112(a) and has not been problematic for the Department or the regulated community. The intent is neither to require storage unit design and construction be certified by a licensed professional engineer nor to put onerous, strict requirements in this general subsection.

255. Comment:

Section 290.401(d) requires the person storing coal ash to “routinely” inspect facilities and equipment. This requirement is vague. A more precise requirement is needed so the regulated community can comply and DEP can enforce the regulation. (1120)

Response:

This language is standard language taken from the design and construction requirements for residual waste storage in § 299.112(c) and has not been problematic for the Department or the regulated community.

§ 290.402

256. Comment:

I do not understand how coal ash stored contrary to the requirements in § 290.402(a)-(c) can be reclassified as waste under § 290.402(d) and the storage area classified as a waste disposal facility. Suggest changing this to instead require the person to conduct an abatement plan under § 290.305. (945)

Response:

Only coal ash that is beneficially used is exempt from the definition of solid waste under SWMA. Therefore, once the coal ash is no longer being beneficially used, it becomes a solid waste and must be managed as a solid waste. If coal ash is not being managed in accordance with the requirements, it is a residual waste, which includes waste from an industrial activity.

257. Comment:

The beneficial uses in Subchapter B require a short time (24 or 48 hours) to place the ash or store in accordance with Subchapter E. For smaller construction projects involving placement of small quantities of coal ash over a short duration, the requirements of Subchapter E are overly burdensome and will prevent the beneficial use of smaller quantities of coal ash. We suggest that § 290.402(c)(2) be revised to allow temporary storage on stabilized surfaces (not impermeable floors or pads) with the piles being covered with water resistant tarps to prevent the infiltration of water through the piles. (959)

Response:

The final-form regulations allow temporary storage up to 14 days in piles, as long as § 290.405(a) and (b) are met. However, storage at the placement site must not exceed the time limits for spreading and compaction or incorporation in Subchapter B.

258. Comment:

Language should be added to indicate that a groundwater source is a drinking water source in § 290.404(a)(2) (962)

Response:

The terminology used is “groundwater water source,” which refers to a groundwater drinking water supply. The term “water source” is currently defined in § 287.1.

259. Comment:

The term “significant quantity” used in § 290.402(b)(1) is vague. Reference to a more precise amount should be included in the final-form regulation. (1120)

Response:

Section 290.402(b) has been deleted. All of the storage requirements are contained in § 290.402(a). The issue of duration of storage for anti-skid material is addressed in § 290.402(a).

260. Comment:

Clarify § 290.402(c)(1) by replacing “previous year” with “previous twelve calendar months.” (1095)

Response:

“Previous year” has been replaced with “previous calendar year commencing on January 1” in the final-form regulations.

261. Comment:

The term “operational records that are sufficiently detailed to demonstrate to the Department” used in § 290.402(e) is subjective and vague. The regulation should be amended to provide a clear standard for compliance and enforcement. (1120)

Response:

This language is standard language taken from the duration of storage requirements for residual waste in § 299.113(c) and has not been problematic for the Department or the regulated community. It allows the operator to determine the means by which its activities are recorded, since business practices and site characteristics may vary.

262. Comment:

Under § 290.402(f), what “other requirement” does the regulation refer to? This is vague and may lead to enforcement of provisions not in the regulations. We recommend deleting this phrase. (1120)

Response:

This subsection has been removed from the final-form regulations.

§ 290.403

263. Comment:

Section 290.403(c) should also prohibit storage in a manner that causes surface water degradation. (1121)

Response:

This suggested recommendation has been incorporated into the final-form regulations.

§ 290.404

264. Comment:

DEP should define the term “impoundment” to clarify its meaning in these regulations. (945)

Response:

The term “impoundment” is defined in § 287.1.

265. Comment:

Coal ash stored in an enclosed facility with an impermeable floor should be exempt from the restrictions in § 290.404(a). (1095)

Response:

This suggested recommendation has been incorporated into the final-form regulations.

266. Comment:

Section 290.404(b)(2) prohibits storage of coal ash within 300 feet of a groundwater water source. Since rainwater recharges groundwater, would all areas that receive rainwater be a groundwater source? Suggest DEP re-evaluate this section and clarify its meaning. (945)

It should be specified that “groundwater water source” refers to groundwater that is used as a source of drinking water. (1095)

Response:

The term “water source” is defined in § 287.1 and is limited to water for human consumption. The requirement only prohibits storage within 300 feet of a well used as a drinking water source.

267. Comment:

Under § 290.404(b)(6), how can it be determined whether a particular geologic study is “competent”? Would certification by a licensed geologist qualify? (1120)

Response:

The requirement is that the study must be certified by a PA registered professional geologist in the final-form regulations.

268. Comment:

Sections 290.404(b)(9) and (10), allow waivers relating to public water supplies and properties. We suggest requiring public notice of the intent to allow these waivers so that people who may be affected have their opportunity to provide their input or consent prior to placement of the coal ash. (1120)

Response:

The waivers for public water for source and school, park and playground have been removed from the final-form regulations.

269. Comment:

Section 290.404(b) fails to consider the existence of previously approved/permitted storage impoundments. (1095)

How will this regulation be administered for existing coal ash storage and impoundments? (1120)

Response:

The final-form rulemaking includes transition periods for requirements not already in effect and the effective date of these regulations.

§ 290.405

270. Comment:

It is impossible to “prevent” the dispersal of material at all times, especially under abnormal weather conditions. The commentator suggests replacing “prevent the dispersal of coal ash” with “minimize the off-site dispersion of coal ash.” (1095)

Response:

The Department has replaced the word “prevent” with “minimize” in the final-form regulations.

271. Comment:

Section 290.405(b) provides a waiver of the four-foot water table separation distance for storage piles. Piles of coal ash that are not stabilized or compacted have a much greater potential for leaching. The eight feet minimum separation from groundwater should not be relaxed for storage piles. (1121)

Response:

The waiver language for residual waste storage piles, which is already in the regulations, has not caused problems and is retained in the final-form regulations. The waiver may be appropriate where piles will be very temporary and very small.

272. Comment:

Section 290.405(b) should be specifically waived for storage piles placed on an impermeable pad or liner. (1095)

Response:

While it may be appropriate to waive the separation distance from the water table for many storage piles placed on a pad or liner, there are other times when site-specific considerations would indicate this waiver is not appropriate. The waiver language allows the Department to evaluate the site conditions in determining if this separation distance from the water table is necessary.

273. Comment:

Section 290.405(d) should require water quality monitoring for all storage piles that lack a liner or storage pad. (1121)

Response:

Many of the storage piles will be short in duration and contain very limited quantities of coal ash, such as at a construction site where coal ash is used for pipe bedding or bottom ash used as antiskid. Requiring either water quality monitoring or a liner or pad would not result in any environmental benefit and would be overly burdensome.

§ 290.407

274. Comment:

Section 290.407(a) should recognize the leachate and runoff can also be directed to a treatment system. This clarification should be added. (1095)

Response:

The final-form regulation allows leachate to be diverted into a leachate storage or treatment system.

§ 290.410

275. Comment:

Section 290.410 (4) uses the vague term “rapidly.” “Rapidly” should be replaced with a clear standard. (1120)

Response:

The language in this subsection is consistent with the language used for residual waste storage impoundments and has not presented difficulties to the regulated community or the Department.

276. Comment:

It is not clear how the liner standard in § 290.410 (5)(i) would be applied to existing storage impoundments. (1120)

Response:

The final rulemaking includes transition periods for requirements not already in effect at the effective date of these regulations.

277. Comment:

Section 290.410 (10)(i) and (vii) set design requirements to prevent overtopping for a 24-hour event on the 25-year cycle. However, climate change models and recent data indicate that storms will occur of greater intensity than we have experienced in the past century. It is likely that the volume of water that used to be associated with a 25-year event will be seen much more frequently. DEP should require sufficient freeboard for the predicted 25 percent increase in peak flows and two additional storm events per year with greater than two inches of rain. (1121)

Response:

The required minimum two feet of free board is a standard industry design and practice and should effectively manage these storm events. There should be no contributing drainage because the impoundment is designed to prevent or minimize surface water run-on from offsite areas.

§ 290.411

278. Comment:

The bottom two feet of fencing in §290.411 should be made impermeable to wildlife using a tightly woven material, such as silt fencing, to prevent amphibians from breeding in contaminated water in the impoundments. (1121)

Response:

The purpose of this fencing requirement is to prevent access by unauthorized persons as a matter of public safety. It is not practical to construct a fence around a coal ash storage impoundment capable of keeping wildlife, including amphibians, away from the impoundment area.

§ 290.412

279. Comment:

Section 290.412(a) requires notice to DEP upon failure of an impoundment, but does not require public notice. Should the public be notified if a storage impoundment fails and could cause problems beyond its boundaries? (1120)

Response:

In the event of a failure of a coal ash storage impoundment that could threaten public health, the Department will notify the public.