3.0 Comments

Regardless of its length, complexity, or originator, each of the approximately 1,600 comment documents DOE received was assigned a unique, sequential document identification (ID) number, roughly in the order in which the comment document was received. A relational database was used to track the pertinent information—document ID number, name of commentor, agency or organization (where applicable), and so forth—for all comment documents received.

DOE's analysis of the approximately 1,600 comment documents revealed that approximately 1,450 of them could be readily encompassed by one of six "summary comments" that DOE developed to facilitate responding to very similar or identical comment documents. For example, approximately 650 comment documents supported removing the tailings pile from the banks of the Colorado River, usually without suggesting an alternate location for the tailings but stating at least one reason why the tailings should be moved. DOE developed one summary comment to represent all 650 comment documents that voiced this opinion. Another approximately 640 comment documents supported relocating the pile to either Klondike Flats or Crescent Junction, and DOE developed another summary comment to represent those comment documents. These individual comments are maintained in the project files, and copies are available in the public reading rooms. The six summary comments were assigned document ID numbers S-1 through S-6; they are shown in Section 3.2.

The remaining comment documents (approximately 150) could not be readily linked to a summary comment. Many of these were lengthy or addressed a range of different technical, regulatory, or policy topics. To facilitate the process of providing a comprehensive response to lengthy or multi-topic comment documents, DOE extracted discrete, unedited comments from the documents and assigned each comment its own number. The order of the comments reflects the original and unedited text of the comment document. Thus, a single comment document with a unique document ID number may have multiple comments. Within the set of approximately 150 comment documents not linked to a summary comment, the number of extracted comments ranges widely, from one to more than 100; in all, more than 1,000 comments were extracted from the 150 comment documents. The comment documents are reproduced in their entirety in Section 3.2.

3.1 Comment Document Index Tables

Tables 3−1, 3−2, and 3−3 are cross-referenced index tables that collectively assist commentors in finding the unique document ID number assigned to his or her comment document. Table 3−1 lists the document ID numbers in numerical sequence and shows the name of the individual submitting the comment (the commentor). If the commentor was affiliated with an agency or organization, that information is also included. Table 3−1 also gives the page number in Sections 3.2 and 4.2 where a comment document or summary comment can be found. Table 3−2 lists the same information indexed alphabetically by commentors' names. This table allows commentors to quickly determine the unique document ID number assigned to their comment document.

Table 3−3 lists the cooperating agencies alphabetically, the agencies' document ID numbers, and the page number in Sections 3.2 and 4.2 where the agencies' comment documents can be found.

In a very few instances, comment documents were deleted from the database after they had been assigned a document ID number. This was done only if the comment document was (1) a duplicate submittal (identical author and content), (2) subsequently withdrawn by the commentor, or (3) determined by DOE to be unrelated to the draft EIS.

Table 3–1. Index of Comment Documents by Document ID Number

Document ID Number	Name	Agency/Organization	Chapter 3 Page	Chapter 4 Page
S-1	Summary Comment #1	n/a	3–71	4–71
S-2	Summary Comment #2	n/a	3–72	4–77
S-3	Summary Comment #3	n/a	3–72	4–78
S-4	Summary Comment #4	n/a	3–72	4–78
S-5	Summary Comment #5	n/a	3–72	4–79
S-6	Summary Comment #6	n/a	3–73	4–81
1	Wates, Don	Individual	3–72	4–77
2	Gilmour, Kenneth John	Individual	3–71	4–71
3	Roberts, Ricky	Northern Arizona University	3–71	4–71
4	Ross, John & Margaret	Individual	3–71	4–71
5	Cardella, Sylvia	Individual	3–71	4–71
6	McLaughlin, Blair	Individual	3–71	4–71
7	Wagner, Joanne L.	Individual	3–71	4–71
8	Hastings, Nora Lee	Individual	3–71	4–71
9	Orr, Joe	Individual	3–71	4–71
10	Rogers, MD, Alan	Individual	3–71	4–71
11	Bennett, Jean M.	Individual	3–71	4–71
12	Thompson, Robert R.	Individual	3–71	4–71
13	Kranz, Roy	Individual	3–71	4–71
14	Turkot, Patricia and Frank	Individual	3–71	4–71
15	Robins, Donna Robi	Individual	3–71	4–71
16	Wolf, Barry	Individual	3–71	4–71
17	Haugen, Bob	Individual	3–71	4–71
18	Bickel, Bettina	Individual	3–71	4–71
19	Blue, Jenny	Individual	3–71	4–71
20	Munroe, Rich	Individual	3–71	4–71
21	Truax, Wayne	Individual	3–71	4–71
22	Silberberg-Peirce, Susan	Canyonlights Slides/Photography	3–71	4–71
23	Jones, Ed.D., Robert A.	The Empty Bell	3–71	4–71
24	Lien, David A.	Individual	3–71	4–71
25	Darke, John	Individual	3–74	4–83
26	Darke, John	Individual	3–75	4–84
27	Darke, John	Individual	3−77	4–86
28	Cloud, Neil B.	Southern Ute Indian Tribe	3–78	4–87
29	Sellers, Charlie R.	Individual	3–72	4–78
30	Bates, Tony	Individual	3–72	4–78
31	Walker, Olene S.	State of Utah	3–79	4–88
32	Boyd, Dunston F.	Individual	3–72	4–78
33	Swasey, G.R. and Verla	Individual	3–81	4–90
34	Nielsen, M. Gail	Individual	3–82	4–91
35	Johnson, Brenda	Deleted-Withdrawn by the U.S. Department of the Interior		
36	McDermott, Patrick	Community of Bluff	3–83	4–92
37	Darke, John	Individual	3–84	4–94
38	Darke, John	Deleted-Duplicate of Document #37		
39	Black, John K.	Individual	3–71	4–71
40	Allen, Duncan	Individual	3–72	4–78
41	Pierson, Lloyd M.	Individual	3–71	4–71
42	Darke, John	Individual	3–85	4–95
43	Baker, Pamela W.	Individual	3–86	4–97
44	Bradford, Cleal	Individual	3–72	4–77

Table 3−1. Index of Comment Documents by Document ID Number (continued)

Document ID Number	Name	Agency/Organization	Chapter 3 Page	Chapter 4 Page
45	Whiskers, Thelma	White Mesa Concerned Community	3–87	4–100
46	Lippman, Robert	Deleted-Duplicate of Document #136		
47	Dohrenwend, John C.	Individual	3–96	4–115
48	Bailey, Carrie	Individual	3–71	4–71
49	Hazen, Gary	Individual	3–71	4–71
50	Bodner, David W.	Individual	3–71	4–71
51	Geiger, John	Individual	3–71	4–71
52	Harrington, Susie	Individual	3–71	4–71
53	Kercheu, Rob	Individual	3–71	4–71
54	Tate, LaVerne	Individual	3–72	4–77
55	Yazzie, Mary Jane	Individual	3–72	4–77
56	McDaniel, LaRue	Individual	3–72	4–77
57	Webb, Chris	City of Blanding, City Manager	3–98	4–119
58	Christie, Richard Lance	Association for the Tree of Life	3–99	4–122
59	Baker, Quentin	Individual	3–71	4–71
60	Benson, Ashley	John Burroughs School	3–71	4–71
61	Davidson, Dale	Individual	3–71	4–71
62	Policaro, Don	Individual	3–71	4–71
63	Stewart, Robert F.	Department of Interior	3–107	4–140
64	Rippy, Jeff	Deleted-Not an EIS comment		
65	Heart, Manuel	Ute Mountain Ute Tribe	3–116	4–163
66	Knight, Terry	Ute Mountain Ute Tribe	3–118	4–167
67	Knight, Carl	Ute Mountain Ute Tribe	3–119	4–171
68	Redhouse, John	Diné CARE	3–121	4–176
69	Badback, Yolanda	Individual	3–122	4–177
70	Whiskers, Thelma	Individual	3–123	4–178
71	Angel, Bradley	Green Action for Health and Environmental Justice	3–125	4–184
72	Fields, Sarah	Individual	3–127	4–189
73	Beck, Dudley	Individual	3–128	4–193
74	Atcitty, Elaine	White Mesa Ute Indian Tribe	3–129	4–195
75	Lehi, Malcom	White Mesa Ute Administration	3–130	4–197
76	Morgan, Manuel	San Juan County Commission	3–131	4–198
77	Goodman, Margaret	Individual	3–132	4–200
78	Weisheit, John	Living Rivers	3–134	4–202
79	Fields, Sarah	Sierra Club	3–135	4–205
80	Weisheit, John	Living Rivers	3–136	4–207
81	Fields, Sarah	Sierra Club	3–137	4–208
82	Tanner, Rex	Grand County Council	3–139	4–210
83	Sakrison, Dave	City of Moab, Mayor	3–140	4–213
84	Russell, Steve	Individual	3–142	4–217
85	Bodner, David	Individual	3–143	4–220
86	Seal, Franklin	Individual	3–144	4–222
87	Bliss, Eleanor	Grand Canyon Trust	3–145	4–224
88	Hazen, Gary	Individual	3–146	4–228
89	Weisheit, John	Living Rivers	3–146	4–229
90	Hancock, Karla	Individual	3–147	4–230
91	Inskip, Eleanor	Individual	3–147	4–231

Table 3−1. Index of Comment Documents by Document ID Number (continued)

Document ID Number	Name	Agency/Organization	Chapter 3 Page	Chapter 4 Page
92	Vaughn, Rita	Individual	3–148	4–234
93	Fitzburgh, Mary Beth	Individual	3–149	4–235
94	Harrison, Bruce	Individual	3–149	4–236
95	Carlson, Jim	Individual	3–150	4–240
96	Campbell, Jack	Individual	3–151	4–241
97	Hackley, Pam	Individual	3–151	4–242
98	Lippman, Bob	Castle Valley Town Council	3–151	4–243
99	Angel, Bradley	Green Action for Health and Environmental Justice	3–153	4–247
100	Hedden, Bill	Grand Canyon Trust	3–154	4–250
101	Oblak, Denise	Utah Guides and Outfitters Association	3–156	4–254
102	Wait, Jeannine	Individual	3–157	4–255
103	Fields, Sarah	Sierra Club	3–157	4–256
104	Lowe, Janet	Grand County	3–158	4–258
105	McCleary, Jeff	Individual	3–159	4–260
106	Thuesen, Jim	Individual	3–161	4–263
107	Regehr, Ron	Individual	3–162	4–266
108	Graham, Audrey	Individual	3–163	4–267
109	Stolfa, Dave	Individual	3–163	4–269
110	Darke, John	Individual	3–164	4–270
111	Cozzens, Dave	Individual	3–166	4–274
112	Webb, Chris	City of Blanding, City Manager	3–167	4–275
113	Frazier, Ana Marie	Diné CARE	3–168	4–278
114	Loux, Robert	Nevada Agency for Nuclear Projects	3–171	4–281
115	Broughton, B.A.	Individual	3–72	4–78
116	Hinds, Don	Individual	3–71	4–71
117	Clark, David P.	Individual	3–71	4–71
118	Taparauskas, Irene	Individual	3–71	4–71
119	Congressional Delegation of Utah[a]	U.S. Senators and Representatives	3–174	4–283
120	Stafford, Michael J.	Nevada Department of Administration	3–176	4–285
121	Boling, William C.	Individual	3–71	4–71
122	Schulze, Jan R. Carney	Individual	3–71	4–71
123	Hill, Lu-Gray	Individual	3–71	4–71
124	Peppin, Catherine A.	Individual	3–71	4–71
125	von Koch, Mary	Individual	3–71	4–71
126	Juenger, Kate	Individual	3–71	4–71
127	McCleary, Jeff and Wren	Individual	3–177	4–286
128	Jones, Patricia	Individual	3–71	4–71
129	Sculpt, Lia	Individual	3–72	4–78
130	Morgan, Doc	Individual	3–71	4–71
131	Padilla, Randy	Individual	3–71	4–71
132	Smith, Loura	Individual	3–71	4–71
133	Root, Don	Individual	3–71	4–71
134	Noonan, Laura	Individual	3–72	4–78
135	Frias, Ralph A.	Individual	3–71	4–71
136	Lippman, Robert	Castle Valley Town Council	3–179	4–292
137	Town of Castle Valley	Castle Valley	3–181	4–295
138	Rand, Stephen and Carol	Individual	3–71	4–71

Table 3−1. Index of Comment Documents by Document ID Number (continued)

Document ID Number	Name	Agency/Organization	Chapter 3 Page	Chapter 4 Page
139	Castillo, Debbie	Individual	3–71	4–71
140	Richardson, Tom	Individual	3–71	4–71
141	Brown, Joel	Individual	3–71	4–71
142	Roslund, Dan	Individual	3–71	4–71
143	Lyons, Holly	Individual	3–71	4–71
144	Rabiee, Sheryl	Individual	3–71	4–71
145	Bassik, Ken	Individual	3–71	4–71
146	Fahey, Janice	Individual	3–71	4–71
147	Barnett, Tim	Individual	3–71	4–71
148	Lanphear, Michelle	Individual	3–71	4–71
149	Reinhard, Frank	Individual	3–71	4–71
150	Natkin, Jr., Robert E.	Individual	3–71	4–71
151	Whitley, Joan	Individual	3–71	4–71
152	Hansen, Laurel	Individual	3–71	4–71
153	Lowenberg, Herman and Grace	Individual	3–71	4–71
154	Dunn, Barbara	Individual	3–71	4–71
155	Herriman, Wesley and Carol	Individual	3–71	4–71
156	Norris, Thomas	Individual	3–71	4–71
157	Gore, Douglas	Individual	3–71	4–71
158	Rand, Stephen	Individual	3–71	4–71
159	Moreno, Patrice	Individual	3–72	4–78
160	Wilcox, Stephanie	Individual	3–71	4–71
161	Aarestad, Kevin	Individual	3–71	4–71
162	Nelson, Mark H.	Individual	3–71	4–71
163	Siglin, Larry	Individual	3–71	4–71
164	Schauer, Ellen	Individual	3–71	4–71
165	Ludwigsndg	Individual	3–71	4–71
166	Warner, Rob	Individual	3–71	4–71
167	Kuhlman, David B.	Individual	3–71	4–71
168	Romero, Julie	Individual	3–72	4–78
169	Hernandez, Julie	Individual	3–71	4–71
170	Painter, Robert, Anne, and Alexander	Individual	3–71	4–71
171	Weinbaum, Ben	Individual	3–71	4–71
172	Psichogios, Tom	Individual	3–71	4–71
173	Willis, Larry	Individual	3–71	4–71
174	Applen, Kathleen	Individual	3–71	4–71
175	Hilliard, Lucy Bastida	Individual	3–71	4–71
176	Psichogios, Mary	Individual	3–71	4–71
177	Mather, Elizabeth L.	Individual	3–71	4–71
178	Bowers, Bruce and Ruth	Individual	3–71	4–71
179	Corrales, Max	Individual	3–71	4–71
180	Hawk, Tim, Michal, and Pauline	Individual	3–71	4–71
181	Wildenthal, Bryan H.	Individual	3–71	4–71
182	Bolton, Barbara	Individual	3–71	4–71
183	August, Gary	Individual	3–71	4–71
184	Rasmussen, Glen McFadden	Individual	3–71	4–71
185	Fanestil, Darrell D.	Individual	3–71	4–71
186	Banks, Tanya	Individual	3–71	4–71
187	saueronthegreen	Individual	3–71	4–71

Table 3−1. Index of Comment Documents by Document ID Number (continued)

Document ID Number	Name	Agency/Organization	Chapter 3 Page	Chapter 4 Page
188	Chavarria, Al	Individual	3–71	4–71
189	Schaps, Jack	Individual	3–71	4–71
190	Newell, James	Individual	3–71	4–71
191	Struthers, Eileen	Individual	3–71	4–71
192	Davis, Paul	Individual	3–71	4–71
193	Peck, Jr., John	Individual	3–71	4–71
194	Barad, Dean	Individual	3–71	4–71
195	von Eichhorn, John H.	Individual	3–71	4–71
196	valindp	Individual	3–72	4–78
197	Trogden, Stephanie	Individual	3–71	4–71
198	Gallagher, Bruce	Individual	3–71	4–71
199	Rumsey, Eric J.	Individual	3–71	4–71
200	Fisher, Steve and Amanda	Individual	3–71	4–71
201	Hayutin, Joyce	Individual	3–71	4–71
202	Acerro, Theresa	Individual	3–71	4–71
203	Hughes, Tom and Lois	Individual	3–71	4–71
204	Greenspan, Julie	Individual	3–71	4–71
205	Sinnen, Ronald	Individual	3–71	4–71
206	Gandenberger, Daniel	Individual	3–71	4–71
207	Lake, Mark	Individual	3–71	4–71
208	LaFontaine, Paul M.	Individual	3–71	4–71
209	Rekus, Dale	Individual	3–71	4–71
210	Roccoforte, Marilyn and Vito	Individual	3–71	4–71
211	Netanya	Individual	3–71	4–71
212	Alaris	Individual	3–71	4–71
213	Landa, Suzanne	Individual	3–183	4–297
214	Simonton, Cathy	Individual	3–71	4–71
215	Carlson, Vanessa	Individual	3–71	4–71
216	Stoneking, Link	Individual	3–71	4–71
217	Jones, Laverne and R.W.	Individual	3–71	4–71
218	Morrow, Ivy	Individual	3–71	4–71
219	Ringer, CE	Individual	3–71	4–71
220	Hemlock, Thomas	Individual	3–71	4–71
221	Gabor, Peter A.	Individual	3–71	4–71
222	Holmes, Linda	Individual	3–71	4–71
223	Haley, Luckie	Individual	3–71	4–71
224	Buser, John Paul	Individual	3–71	4–71
225	Michiwiec, Sr., David F.	Individual	3–71	4–71
226	Beneventi, Alan	Individual	3–71	4–71
227	Lindbloom, Robert	Individual	3–71	4–71
228	Pluth, Karen	Individual	3–71	4–71
229	Brown, Phyllis	Individual	3–71	4–71
230	Barnard, Janet A.	Individual	3–71	4–71
231	Hayes, Jenna	Individual	3–71	4–71
232	Mifflin, Robert H.	Individual	3–72	4–78
233	Breisch, Susan	Individual	3–71	4–71
234	Saporito, Gloria	Individual	3–71	4–71
235	Thibault, Laura	Individual	3–71	4–71
236	Weir, Barbara G. Campbell	Individual	3–71	4–71
237	Garmen, Jon	Individual	3–71	4–71
238	Hill, Robert D.	Individual	3–71	4–71

Table 3−1. Index of Comment Documents by Document ID Number (continued)

Document ID Number	Name	Agency/Organization	Chapter 3 Page	Chapter 4 Page
239	Pogue, Ann	Individual	3–71	4–71
240	Palfy, Frank and Joy	Individual	3–71	4–71
241	Dunn, Louis	Individual	3–71	4–71
242	Conklin, Sara	Individual	3–71	4–71
243	Kerr, G.R.	Individual	3–71	4–71
244	Murico, Ed	Individual	3–71	4–71
245	Conner, Carolyn	Individual	3–71	4–71
246	Alexander, James P. and Pamela G.	Individual	3–71	4–71
247	Abbott, Susan	Individual	3–71	4–71
248	Curtis, Cheryl	Individual	3–71	4–71
249	Duffy, Lorrain	Individual	3–71	4–71
250	Cooke, Sarah	Individual	3–71	4–71
251	Knighton, Jesse and Jane	Individual	3–71	4–71
252	Du, Lisa	Individual	3–72	4–78
253	A Concerned Reader	Individual	3–71	4–71
254	Fink, Keith	University of San Diego	3–71	4–71
255	Hendricks, Bonnie	EDAW, Inc.	3–71	4–71
256	Brown, Lynn	Individual	3–71	4–71
257	Gregory, Carrie	Individual	3–71	4–71
258	Leonard, John P.	Individual	3–72	4–78
259	Groth, Heidi	Individual	3–71	4–71
260	Fishman, Barbara	Individual	3–71	4–71
261	Hernandez, Greg and Lorie	Individual	3–71	4–71
262	Calvano, Rita	Individual	3–71	4–71
263	Carter, Brady	Individual	3–71	4–71
264	Oblak, Denise	Utah Guides and Outfitters Association	3–184	4–299
265	Diehl, Linda Provence	Individual	3–71	4–71
266	Reed, Jess	Individual	3–72	4–78
267	Boling, William C.	Deleted-Duplicate of Document #121		
268	Yang, James	Individual	3–71	4–71
269	David	Individual	3–186	4–302
270	Carey, Shreya	Individual	3–71	4–71
271	Pfeidough	Individual	3–71	4–71
272	Marshall, Victoria	Individual	3–71	4–71
273	Tall, Rebecca	Individual	3–72	4–78
274	Angelico, Dean and Phyllis	Individual	3–71	4–71
275	Bracey, Michael	Individual	3–71	4–71
276	Irwin, Keith G.	Individual	3–71	4–71
277	Morgal, Rick	Individual	3–71	4–71
278	La Rosa, Frank and Evelyn	Individual	3–71	4–71
279	Dailey-White, Laurel	Individual	3–71	4–71
280	Hurley, Tamara	Individual	3–71	4–71
281	Papayoanou, David C.	Individual	3–71	4–71
282	Frederick, Cari	Individual	3–71	4–71
283	Mecke, James	Individual	3–71	4–71
284	McKay, Linda	Individual	3–71	4–71
285	Moreau, Donna	Individual	3–72	4–78
286	Taggert, Marilyn	Individual	3–72	4–78
287	Sowder, Judith T.	San Diego State University	3–71	4–71
288	Lemons, Helene E.	Individual	3–71	4–71

Table 3−1. Index of Comment Documents by Document ID Number (continued)

Document ID Number	Name	Agency/Organization	Chapter 3 Page	Chapter 4 Page
289	Monroe, Roby	Individual	3–71	4–71
290	Cuidera, Charles	Individual	3–71	4–71
291	Wagner, Steve	Individual	3–71	4–71
292	Higgins, Catherine A.	Individual	3–71	4–71
293	Petrig, Jason C.	Individual	3–71	4–71
294	Steinhause, Kathy	Individual	3–71	4–71
295	Driban, Glenn	Individual	3–71	4–71
296	Ampe, Tim	Individual	3–71	4–71
297	Weston, Steve C.	Padre Dam Municipal Water District	3–71	4–71
298	Paz, Nils	Individual	3–71	4–71
299	Wayne, Vincent and Deborah	Individual	3–71	4–71
300	Johnson, Ferd	Individual	3–71	4–71
301	Rhodes, Steve	Individual	3–71	4–71
302	Wilson, Lisa	Individual	3–71	4–71
303	Garity, Tom	Individual	3–71	4–71
304	Beck, Mike and Gina	Individual	3–71	4–71
305	Chipman, Cheryl	Individual	3–71	4–71
306	McNeely, Jerry	Grand County Council	3–187	4–303
307	Darke, John	Individual	3–192	4–312
308	Brasow, Carl	Deleted-Not an EIS comment		
309	Strell, Lia	Individual	3–71	4–71
310	Anonymous 1	Individual	3–72	4–78
311	Hudack, Linda	Individual	3–71	4–71
312	Gross, Bonnie	Individual	3–71	4–71
313	Keiler, Randy	Individual	3–71	4–71
314	Petrovitch, Michael	Individual	3–72	4–78
315	Balistrary, Frank	Individual	3–71	4–71
316	Anonymous 2	Individual	3–71	4–71
317	McDaniel, Tim	Individual	3–71	4–71
318	Gomez, David	Individual	3–72	4–78
319	Hess, Carlene	Individual	3–71	4–71
320	Anderson, Jane	Individual	3–71	4–71
321	Tobario, Steve	Individual	3–71	4–71
322	Smith, Laura	Individual	3–71	4–71
323	Larson, Pete	Individual	3–71	4–71
324	Coleman, Stacy	Individual	3–71	4–71
325	Piper, David	Individual	3–71	4–71
326	Holgate, Frank	Individual	3–71	4–71
327	Laura, Diana	Individual	3–71	4–71
328	Mezlan, Bernice	Individual	3–71	4–71
329	Winston, Richard	Individual	3–71	4–71
330	Tiontek, Tana	Individual	3–71	4–71
331	Barca, Ron	Individual	3–71	4–71
332	Espanol, Joseph	Individual	3–71	4–71
333	Cohee, Terry	Individual	3–71	4–71
334	Phillips, Sally	Individual	3–71	4–71
335	Honneker, Mary	Individual	3–71	4–71
336	Schoeller, Ann	Individual	3–71	4–71
337	Falor, Beverly	Individual	3–71	4–71
338	Keliher, Pat	Individual	3–71	4–71
339	Anonymous 3	Individual	3–71	4–71

Table 3−1. Index of Comment Documents by Document ID Number (continued)

Document ID Number	Name	Agency/Organization	Chapter 3 Page	Chapter 4 Page
340	Sweig, Jeanne	Individual	3–71	4–71
341	Wright, Jane	Individual	3–72	4–78
342	Anonymous 4	Individual	3–71	4–71
343	Townsend, Roger	Individual	3–71	4–71
344	Huntsman, Jr. Jon M.	State of Utah	3–194	4-313
345	Hackley, Pam	Individual	3–196	4–316
346	Fliegel, Myron	U.S. Nuclear Regulatory Commission	3–201	4–329
347	Hess, John R.	Individual	3–71	4–71
348	Brant, Richard H.	Individual	3–71	4–71
349	Martin, Lori	Individual	3–71	4–71
350	Nelson, Karen	Individual	3–71	4–71
351	Binyon, Jean	Sierra Club, Utah Chapter	3–207	4–338
352	Pickard, Kathy	Individual	3–71	4–71
353	Hedden, Bill	Deleted-Replaced by Document #555		
354	Swisshelm, Richard	Individual	3–71	4–71
355	Moskowitz, Grant	Individual	3–71	4–71
356	Patten, Terese	Individual	3–71	4–71
357	Stolfa, Marilyn S.	Individual	3–71	4–71
358	Wyandt, Paul	Individual	3–71	4–71
359	Barker, John H.	Individual	3–71	4–71
360	Hurley, Mike and Barbara	Individual	3–71	4–71
361	Starbuck, Willaim L.	Individual	3–71	4–71
362	Lennon, Judy	Individual	3–71	4–71
363	Cherry	Individual	3–71	4–71
364	Noyes, Jessica	Individual	3–72	4–78
365	James, Todd M.	Individual	3–72	4–78
366	Choi, Joseph	Individual	3–72	4–78
367	Medina, Edgar	Individual	3–71	4–71
368	Martin, Andrea	Individual	3–72	4–78
369	Klein, Chris	Individual	3–71	4–71
370	Doty, Taylor	Individual	3–71	4–71
371	Moya, Jade	Individual	3–72	4–78
372	Murico, Donna	Individual	3–71	4–71
373	Shanske, Donna	Individual	3–72	4–78
374	Black, Steve	Individual	3–72	4–78
375	Wilk, James	Individual	3–71	4–71
376	Matheson, Jim	Deleted, never formally submitted to DOE as a comment		
377	Walsh, Justin	Individual	3–71	4–71
378	lhart	Individual	3–215	4–353
379	Harrington, John	Individual	3–71	4–71
380	Herron, Rex	Individual	3–71	4–71
381	Wilson, Susan	Individual	3–71	4–71
382	Galassini, Dina	Individual	3–71	4–71
383	Wooldridge, Forrest	Individual	3–72	4–78
384	Olazabal, Addie	EDAW, Inc.	3–71	4–71
385	Straus, Charles R.	Individual	3–71	4–71
386	Rodriguez, Faye	The Marika Group	3–71	4–71
387	Sander, Luther and Eileen	Individual	3–71	4–71
388	Blume, Donald	Individual	3–71	4–71
389	Lewis, Stephen and Mary	Individual	3–72	4–77
390	Ringer, Charles E.	Individual	3–71	4–71

Table 3−1. Index of Comment Documents by Document ID Number (continued)

Document ID Number	Name	Agency/Organization	Chapter 3 Page	Chapter 4 Page
391	Haselfeld, Dianne	Individual	3–71	4–71
392	Butterfield, Jean and Michael	Individual	3–71	4–71
393	Lemen, Sherry	Individual	3–72	4–78
394	Grancell, Alvin	Individual	3–72	4–78
395	Manzer, Anne	Individual	3–72	4–78
396	Oster, Delores A.	Individual	3–71	4–71
397	Vestal, Rita	Individual	3–71	4–71
398	Mira, Julia	Individual	3–71	4–71
399	Bowden, Karen	Individual	3–71	4–71
400	Bannister, Daryl	Individual	3–71	4–71
401	Rouse, Bronwyn M.	Individual	3–72	4–78
402	Binyon, Michael L.	Individual	3–71	4–71
403	Rutledge, Barbara	Individual	3–72	4–78
404	Inskip, Eleanor	Individual	3–71	4–71
405	Vega III, Vladimir	Individual	3–72	4–78
406	Alton, Diane	Individual	3–71	4–71
407	Andykaz	Individual	3–71	4–71
408	Seymour, Richard and Barbara	Individual	3–71	4–71
409	Thompson, David A.	Kearny High Educational Center	3–71	4–71
410	Welch, Dana Franklin	Individual	3–71	4–71
411	Weiler, Geoffrey and Elizabeth	Individual	3–71	4–71
412	Messenger, Thomas J.	Individual	3–71	4–71
413	Peppin, Kip	Individual	3–71	4–71
414	Kanwischer, Kari	Individual	3–71	4–71
415	Thompson, Eleanor	Individual	3–71	4–71
416	Mnichowski, Brittany	Individual	3–71	4–71
417	Thompson, David	San Diego Community College District	3–71	4–71
418	Peck, Vera	Individual	3–71	4–71
419	M, Ana	Individual	3–71	4–71
420	Martin, Eric	Individual	3–71	4–71
421	Thompson, Mr.	Kearny High School	3–71	4–71
422	Dreifuss, Jeanine	Shiley Center for Orthopaedic	3–71	4–71
423	Jouflas, Sandy Hughes	Individual	3–71	4–71
424	Barton, John and Mildred	Individual	3–71	4–71
425	Jett, Lynne	Individual	3–71	4–71
426	Marks, Chris	Individual	3–71	4–71
427	Stafford, Richard A.	Individual	3–216	4–356
428	Rice, Tom	Deleted-Duplicate of Document #549		
429	Dohrenwend, John C.	University of Arizona	3–219	4–360
430	Chorpenning, Patrick	Individual	3–71	4–71
431	Smith, Hector	Individual	3–71	4–71
432	Moore, Amanda	Individual	3–71	4–71
433	Kain, Nancy	Individual	3–235	4–361
434	Showalter, Patricia	Individual	3–71	4–71
435	Curley, Patricia L.	Individual	3–72	4–78
436	Kiffmeyer, Donald	Individual	3–71	4–71
437	Spensley, June	Individual	3–71	4–71
438	Ambrose, Laura, Jeff, Brett, and Cole	Individual	3–71	4–71

Table 3−1. Index of Comment Documents by Document ID Number (continued)

Document ID Number	Name	Agency/Organization	Chapter 3 Page	Chapter 4 Page
439	Lilskippy	Individual	3–71	4–71
440	Lenards, Steve	Individual	3–72	4–78
441	Holenstein, Christian	Individual	3–71	4–71
442	Berryhill, Tamarah	Individual	3–71	4–71
443	Palmer, Anita	Point Loma Nazarene University	3–71	4–71
444	Owens, Stephen A.	Arizona Department of Environmental Quality	3–236	4–362
445	Stapleton, Maureen A.	San Diego County Water Authority	3–241	4–370
446	Nelson, Charles	Individual	3–242	4–372
447	Anonymous San Diego	Individual	3–72	4–78
448	Hunnington, Arthur	Individual	3–71	4–71
449	Stark, Carol	Individual	3–71	4–71
450	Beeman, Daniel	Individual	3–71	4–71
451	Wilson, Jennifer	Individual	3–71	4–71
452	Nichols, Joe	Individual	3–71	4–71
453	Yuskin, Joe	Individual	3–71	4–71
454	Stark, John	Individual	3–71	4–71
455	Dickerman, Karen	Individual	3–71	4–71
456	Noyes, Kirt	Individual	3–71	4–71
457	Phillips, Mauricette	Individual	3–71	4–71
458	MCL Studio	Individual	3–71	4–71
459	Olivas, Nelson	Deleted-Not an EIS comment		
460	McDonough, Nora Jane	Individual	3–72	4–78
461	Young, Ruby	Individual	3–71	4–71
462	Jenkins, Sharon	Individual	3–71	4–71
463	Rosenwald, Althia	Individual	3–71	4–71
464	Honecker, Carl	Individual	3–71	4–71
465	Wooley, Carol	Individual	3–71	4–71
466	Spicer, Duane	Individual	3–71	4–71
467	Leer, Joanne	Individual	3–71	4–71
468	Schafer, Laura	Individual	3–71	4–71
469	Foletta, Lorel	Individual	3–72	4–78
470	Adams, Muriel	Individual	3–71	4–71
471	Orr, Nancy	Individual	3–71	4–71
472	Wagner, Steve	Individual	3–71	4–71
473	Brown, Virginia	Individual	3–71	4–71
474	Little, Andrea	Individual	3–71	4–71
475	Bruckell, Cindy	Individual	3–71	4–71
476	Emerine, Connie	Individual	3–71	4–71
477	Anonymous Feb 16	Individual	3–71	4–71
478	Anonymous 1 Feb 16	Individual	3–71	4–71
479	Wayne, Erica	Individual	3–71	4–71
480	Vairo, Inge	Individual	3–71	4–71
481	Burnett, Jake	Individual	3–71	4–71
482	Cosmeadodge, Katherine	Individual	3–71	4–71
483	Lewis, Lois & Laurence	Individual	3–71	4–71
484	Bose, Norman	Individual	3–71	4–71
485	Molina, Roxanne	Individual	3–71	4–71
486	McCain, Suzanne	Individual	3–71	4–71
487	Wynn, Tina	Individual	3–71	4–71

Table 3−1. Index of Comment Documents by Document ID Number (continued)

Document ID Number	Name	Agency/Organization	Chapter 3 Page	Chapter 4 Page
488	Sakrison, Dave	City of Moab, Mayor	3–244	4–373
489	Williams, Christy	KZMU	3–71	4–71
490	Mello, Fran	Individual	3–72	4–78
491	Tiwald, William	Individual	3–71	4–71
492	Nordling, Thea	Individual	3–71	4–71
493	mtb35	Individual	3–71	4–71
494	Cross, Janice	Individual	3–71	4–71
495	See, Steve	Individual	3–71	4–71
496	Schubert, Gabriele	Individual	3–71	4–71
497	Schroeder, Rosemary	Individual	3–71	4–71
498	Pearson, Candee	Individual	3–71	4–71
499	McDougal, Michele	McDougal & Associates	3–71	4–71
500	Anthony, Linda R.	Individual	3–71	4–71
501	Lovell, Cecila	Individual	3–71	4–71
502	McGrath, Anne S.	Individual	3–71	4–71
503	Stratton, Bill and Ferne	Individual	3–71	4–71
504	Suarez, Michael K.	Individual	3–247	4–380
505	Suarez, Mary	Individual	3–248	4–382
506	Corson, Katherine E.	Individual	3–71	4–71
507	Brinn, Charlene	Individual	3–71	4–71
508	Conklin, Diane	Individual	3–71	4–71
509	Stapleton, Maureen	Deleted-Not an EIS comment		
510	DuBois, William	Individual	3–71	4–71
511	Schettler, Robert	Individual	3–71	4–71
512	Josepho, Mary	Individual	3–71	4–71
513	Marshall, Jan & Jim	Individual	3–71	4–71
514	Wiltse, David	Individual	3–71	4–71
515	Millard, Charles	Individual	3–249	4–384
516	Case, Patricia	Individual	3–71	4–71
517	Breneman Jr., Tom	Individual	3–71	4–71
518	Belcher, Barbara	Century 21 Carole Realty	3–71	4–71
519	James, Gordon	Individual	3–72	4–78
520	Julian, Christian	Individual	3–71	4–71
521	Williams, Patty Ann	Individual	3–71	4–71
522	Dahl, Teresa & Marvin	Individual	3–71	4–71
523	Kosek, Shirley	Individual	3–71	4–71
524	Gleason, Vern & Lois	Individual	3–71	4–71
525	Bishop, Louise & Donn	Individual	3–71	4–71
526	Schechter, Ann & John	Individual	3–71	4–71
527	Tielens, Arthur J.	A.J. Tielens and Associates	3–250	4–386
528	Reed, Jess	Deleted-Not an EIS comment		
529	Bennett, Larry E.	Individual	3–71	4–71
530	Hughes, Billie Lois	Individual	3–71	4–71
531	Rubacalva, Manuela	Individual	3–71	4–71
532	Jackson, Henry & Jane	Individual	3–71	4–71
533	Woodfin, Debbie	Individual	3–71	4–71
534	Angel, Bradley	Greenaction for Health & Environmental Justice	3–71	4–71
535	Moran, Mary	Individual	3–253	4–388
536	LeMontre, Sue	Individual	3–257	4–397
537	Maia, Maia	Individual	3–258	4–398
538	Leuk, Sue	Individual	3–71	4–71

Table 3−1. Index of Comment Documents by Document ID Number (continued)

Document ID Number	Name	Agency/Organization	Chapter 3 Page	Chapter 4 Page
539	Rivera, Madeline	Individual	3–259	4–399
540	Trenholme, Howard	Individual	3–71	4–71
541	Yancey, William B.	Individual	3–71	4–71
542	Tran, Thuy	Individual	3–71	4–71
543	Kain, Karen	Individual	3–71	4–71
544	Park, Conor	Individual	3–71	4–71
545	Pucillo, Steve	Individual	3–71	4–71
546	Dhsurf	Individual	3–71	4–71
547	Angel, Bradley	Green Action	3–260	4–400
548	Bauman, Valeria	Individual	3–71	4–71
549	Whiteskunk, Selwyn	Ute Mountain Ute Tribe	3–261	4–401
550	Brown, Frederick	Individual	3–71	4–71
551	Crick, Tim & Victoria	Individual	3–71	4–71
552	Dotson, Virgina	Individual	3–71	4–71
553	Underwood, Dennis	Metropolitan Water District of Southern California	3–272	4–411
554	Browne, Robert	Individual	3–71	4–71
555	Hedden, Bill	Grand Canyon Trust	3–295	4–426
556	Hartsfield, Sam	Port of Portland	3–312	4–457
557	Members of Congress[b]	Congress of the United States	3–313	4–458
558	Nielson, Dianne R.	Utah Department of Environmental Quality	3–316	4–461
559	Rosson, Clay	Individual	3–357	4–537
560	Carlson, Virginia	Individual	3–359	4–541
561	Braun, Joseph	Individual	3–71	4–71
562	Brown, Darcey	Individual	3–71	4–71
563	Bryant, Gary	Individual	3–71	4–71
564	Davis, Donna	Individual	3–71	4–71
565	Arnold, Chris	Individual	3–71	4–71
566	Snyder, Philip	Individual	3–71	4–71
567	Lynch, Esq. Robert	Irrigation & Electrical Districts Association of Arizona	3–362	4–551
568	Weisheit, John	Living Rivers and Colorado Riverkeeper	3–364	4–553
569	Eininger, Sue	Individual	3–71	4–71
570	Bauman, Sarah	Individual	3–71	4–71
571	Crysdale, Bonnie	Individual	3–71	4–71
572	Indergard, RG Lantz M.	Individual	3–369	4–565
573	Fong, P.E., Leighton	Glendale Water & Power	3–374	4–569
574	Roberts, Robert E.	U.S. Environmental Protection Agency	3–375	4–570
575	Ferrell, Jean	N. N. Jaeschke, Inc.	3–71	4–71
576	Goddard, Monica	Individual	3–71	4–71
577	Babbitt, James	Individual	3–71	4–71
578	Moody, Tom	Natural Channel Design, Inc.	3–71	4–71
579	Bliss, Eleanor	Individual	3–71	4–71
580	Babcock, Arlinda & Jeffrey	Individual	3–71	4–71
581	Nyman, Michael	Individual	3–71	4–71
582	Lamm, Dorothy & Ken	Individual	3–71	4–71
583	Lebkuecher, Steve	Individual	3–71	4–71
584	Paulson, Pamela	Individual	3–71	4–71
585	Belkin, Alan	Individual	3–71	4–71
586	Lewis, Sandy & Mel	Individual	3–71	4–71

Table 3−1. Index of Comment Documents by Document ID Number (continued)

Document ID Number	Name	Agency/Organization	Chapter 3 Page	Chapter 4 Page
587	Farrari, Kimberly	Individual	3–71	4–71
588	Goldstein, Candace	Individual	3–71	4–71
589	Cavendish, Abbey	Individual	3–71	4–71
590	Grantham, Jerald	Individual	3–71	4–71
591	Nordby, Vonnie	MyDAS, Inc.	3–72	4–78
592	Gleason, Bill & Donna	Individual	3–71	4–71
593	Deanna	Mesa Verde Middle School	3–71	4–71
594	Edwards, David & Linda	Individual	3–72	4–78
595	Bates, Hedda	Individual	3–71	4–71
596	Desai, Kinjal	Individual	3–71	4–71
597	Carlson, Jim	Individual	3–71	4–71
598	Keeler, Bruce	Red River Canoe Company	3–402	4–633
599	Goegel, Moira	Individual	3–71	4–71
600	Cross, Dale	Individual	3–71	4–71
601	Drogin, Alice	Individual	3–71	4–71
602	Paterson, Lisa	Individual	3–403	4–635
603	Metzler, Allison	Individual	3–71	4–71
604	Lucisano, Dominic	Mesa Verde Middle School	3–71	4–71
605	Keating, Riley	Individual	3–71	4–71
606	Kirtley, Dennie	Individual	3–71	4–71
607	Lui, Samantha	Individual	3–71	4–71
608	Silva, Dennis	Individual	3–71	4–71
609	Santillo, Richard	Individual	3–71	4–71
610	O'Grady, Jean	Individual	3–71	4–71
611	Anderson, Wayne	Individual	3–71	4–71
612	VanderZanden, Karla	Canyonlands Field Institute	3–71	4–71
613	Z, Ariana	Mesa Verde Middle School	3–71	4–71
614	Cantrell, Chase	Individual	3–71	4–71
615	Bowles, Sharon	Individual	3–71	4–71
616	Hartge, Torie	Individual	3–71	4–71
617	Rodeheaver, Vonda	Individual	3–71	4–71
618	Watkins, Cameron	Individual	3–71	4–71
619	Hagen, Melena	Individual	3–71	4–71
620	Lewis, Bradley	Individual	3–71	4–71
621	Murahovscaia, Nadejda	Point Loma Nazarene University	3–71	4–71
622	Bowles, Philip	Individual	3–71	4–71
623	Johnston, Ashley	Individual	3–71	4–71
624	Irwin, Constance	Point Loma Nazarene University	3–71	4–71
625	Barker, James	Individual	3–71	4–71
626	Wu, John	Individual	3–71	4–71
627	Giannini, James	Individual	3–71	4–71
628	Cranmer, Jana	Point Loma Nazarene University	3–71	4–71
629	Ovando-Knutson, Cynthia	Point Loma Nazarene University	3–71	4–71
630	Mooring, Dr. Michael	Point Loma Nazarene University	3–71	4–71
631	Lazaro, Melissa	Individual	3–71	4–71
632	Moser, Alicia	Individual	3–71	4–71
633	Mickle, Joanna	Individual	3–71	4–71

Table 3−1. Index of Comment Documents by Document ID Number (continued)

Document ID Number	Name	Agency/Organization	Chapter 3 Page	Chapter 4 Page
634	Rabello, Dianne	Point Loma Nazarene University	3–71	4–71
635	Jafry, Patricia	Individual	3–71	4–71
636	May, Myrna	Individual	3–71	4–71
637	Gates, Jamie	Individual	3–71	4–71
638	Peterson, Tara	Individual	3–71	4–71
639	Pagan, Beryl	Individual	3–71	4–71
640	Atkins, Dr. Sue	Point Loma Nazarene University	3–71	4–71
641	Leon, Susie	Individual	3–71	4–71
642	Northam, Elizabeth	Individual	3–71	4–71
643	Sandoval, Gerardo	Individual	3–71	4–71
644	Street, Stacey	Klassen Hall	3–71	4–71
645	Mentzer, Danielle	Klassen Hall	3–71	4–71
646	Davis, Jesse	Individual	3–71	4–71
647	Gregg, Julie	Individual	3–71	4–71
648	Loyko, Megan	Individual	3–71	4–71
649	Serrano, Indra	Finch Hall A-2	3–71	4–71
650	Allen, Aimee	Individual	3–71	4–71
651	Pedersen, Dr. Keith	Point Loma Nazarene University	3–71	4–71
652	Horak, Benjamin	Individual	3–71	4–71
653	Maier, Jean	Individual	3–71	4–71
654	Pilewski, Laura	Individual	3–71	4–71
655	dwhittemore	Individual	3–72	4–78
656	Goldman, Richard	Individual	3–71	4–71
657	Nyman, Suiko Dam	Individual	3–71	4–71
658	Groenewold, Jason	Healthy Environment Alliance of Utah	3–71	4–71
659	McCarn, Dan	Individual	3–71	4–71
660	Coffey, Chris	Individual	3–71	4–71
661	Giffin, Patty	Individual	3–71	4–71
662	Roberts, Harold	International Uranium (USA) Corporation	3–404	4–636
663	Goddard, Terry	Office of the Attorney General	3–412	4–650
664	Bennett, Dr. Jean	Individual	3–71	4–71
665	Noyes, Kurt	Individual	3–71	4–71
666	Smith, Margaret	Individual	3–71	4–71
667	Gregory, Jeannie	San Diego Natural History Museum	3–71	4–71
668	Martin, Andrea	Individual	3–71	4–71
669	Kamala, Laura	Grand Canyon Trust	3–413	4–652
670	Hodge, Gordon	Individual	3–71	4–71
671	Osborne, Ken	Individual	3–71	4–71
672	Peschong, Jon	Duratek Federal Services	3–414	4–654
673	Clark, Monette	Individual	3–415	4–655
674	Stoker, David	Individual	3–71	4–71
675	Ting, Jantrue	Individual	3–71	4–71
676	Smith, Stephen	Individual	3–71	4–71
677	Jones, Kalen	Individual	3–71	4–71
678	Stolfa, Dave	Individual	3–71	4–71
679	Melious, Rachele	Individual	3–71	4–71
680	Zapotocky, David	Individual	3–71	4–71

Table 3−1. Index of Comment Documents by Document ID Number (continued)

Document ID Number	Name	Agency/Organization	Chapter 3 Page	Chapter 4 Page
681	Chan, Victor	Individual	3–71	4–71
682	Rayner, Lisa	Individual	3–71	4–71
683	Underhill, Janice	Individual	3–71	4–71
684	Weber, Ivan	Weber Sustainability Consulting	3–417	4–659
685	Bain, Frank	Individual	3–71	4–71
686	Hess, John	Individual	3–71	4–71
687	Harvey, Sally	Individual	3–71	4–71
688	Chambliss, Jessie B.	Deleted-Not an EIS comment		
689	McNeely, Jerry	Grand County Council	3–421	4–667
690	Sjostedt, Susanne	Deleted-Not an EIS comment		
691	Bleakley, Caroline	Deleted-Not an EIS comment		
692	Capano, Sandra and Richard	Individual	3–71	4–71
693	Csanadi, William C. and Beata M.	Individual	3–71	4–71
694	Bifulci, Danielle	Individual	3–71	4–71
695	Doran, Liza	Individual	3–71	4–71
696	Bruno, Jeanne-Marie	Park Water Company	3–426	4–675
697	Ostler, Jim	Individual	3–71	4–71
698	Pope, Carl	Sierra Club	3–71	4–71
699	Livermore, Dave and Bellagamba, Susan	The Nature Conservancy	3–427	4–677
700	McEwen, Marjorie Larock	Individual	3–71	4–71
701	LaBlond, Juanita E.	Individual	3–71	4–71
702	Kent, Dan	Red Rocks Forest	3–71	4–71
703	Chalmers, Diana	Individual	3–71	4–71
704	Terebey, Nicholas	Individual	3–71	4–71
705	Mercandetti, Ann E. Smith	Individual	3–71	4–71
706	Fields, Sarah M.	Glen Canyon Group	3–434	4–691
707	Fields, Sarah M.	Individual	3–466	4–733
708	Anonymous 5	Individual	3–72	4–78
709	Alsup, Adel	Individual	3–71	4–71
710	McLeod, Al	Individual	3–71	4–71
711	Regier, Alex	Individual	3–71	4–71
712	Stiff, Anna	Individual	3–71	4–71
713	Anonymous 6	Individual	3–71	4–71
714	Cuba, Bernice	Individual	3–71	4–71
715	Anonymous 7	Individual	3–71	4–71
716	Anonymous 8	Individual	3–71	4–71
717	Anonymous 9	Individual	3–71	4–71
718	Foster, Anthony	Individual	3–71	4–71
719	Celine, Audrey	Individual	3–71	4–71
720	Milner, Cynthia	Individual	3–71	4–71
721	Smith, Cynthia	Individual	3–71	4–71
722	Coram, Betty	Individual	3–71	4–71
723	Celine, Sherry	Individual	3–71	4–71
724	Hao, Chong	Individual	3–71	4–71
725	Cohen, Connie	Individual	3–71	4–71
726	Seawell, Earnest N.	Individual	3–71	4–71
727	Lill, Dave	Individual	3–71	4–71
728	Everist, David	Individual	3–71	4–71
729	King, Deanna	Individual	3–71	4–71

Table 3−1. Index of Comment Documents by Document ID Number (continued)

Document ID Number	Name	Agency/Organization	Chapter 3 Page	Chapter 4 Page
730	Rounkles, Diane	Individual	3–72	4–78
731	Freed, Doris	Individual	3–71	4–71
732	Chen, Jay	Deleted-Not an EIS comment		
733	Marillo, Eve	Individual	3–71	4–71
734	Moore, Evelyn	Individual	3–72	4–78
735	Houston, Gail	Individual	3–71	4–71
736	Bennett, James	Individual	3–72	4–78
737	Austin, Janina	Individual	3–71	4–71
738	Taylor, Joanne A.	Individual	3–71	4–71
739	Yonker, Joanne	Individual	3–71	4–71
740	John	Individual	3–71	4–71
741	Cafry, John	Individual	3–71	4–71
742	Stewart, Katherine	Individual	3–71	4–71
743	Woodard, Joan	Individual	3–71	4–71
744	Sharon	Individual	3–71	4–71
745	Hotchkiss, Lita	Individual	3–72	4–78
746	Barker, M. J.	Individual	3–71	4–71
747	Burke, Mack	Individual	3–71	4–71
748	Leason, Mark	Individual	3–71	4–71
749	Drogin, Ken	Individual	3–71	4–71
750	Duncan, Michael	Individual	3–71	4–71
751	McDougal, Michele	Individual	3–71	4–71
752	Wurth, Michelle	Individual	3–71	4–71
753	Blair, Patricia	Individual	3–71	4–71
754	Huckaby, Marlene	Individual	3–71	4–71
755	Reed, Mary	Individual	3–71	4–71
756	Mattewson, Phillip L.	Individual	3–71	4–71
757	Stern, Rochelle	Individual	3–72	4–78
758	Karcher, Samuel	Individual	3–71	4–71
759	Hughes, Sandy & Harold	Individual	3–71	4–71
760	Suplee, Serena	Individual	3–71	4–71
761	Woodard, Patty	Individual	3–72	4–78
762	Fugit, Victoria	Individual	3–71	4–71
763	Rains, Gail	Individual	3–72	4–79
764	Armour, Peggy	Individual	3–72	4–79
765	St Raynis	Individual	3–72	4–79
766	Singer, Kay	Individual	3–72	4–79
767	Stefanow, Jennifer	Individual	3–72	4–79
768	Paley, Jan	Individual	3–72	4–79
769	Griffith, Dian	Individual	3–72	4–79
770	McCloud, Russell	Individual	3–72	4–79
771	Bauchau, Clara	Individual	3–72	4–79
772	Bauchau, Mijanou	Individual	3–72	4–79
773	Bauchau, Enduit	Individual	3–72	4–79
774	English, Rebecca	Individual	3–72	4–79
775	Villavicencio, Alan	Individual	3–72	4–79
776	Moore, Kristie	Individual	3–72	4–79
777	G.H., Sara	Individual	3–72	4–79
778	Anderson, Ellen	Individual	3–72	4–79
779	Hoyt, Jennifer	Individual	3–72	4–79
780	Manto, Jonathan	Individual	3–72	4–79

Table 3−1. Index of Comment Documents by Document ID Number (continued)

Document ID Number	Name	Agency/Organization	Chapter 3 Page	Chapter 4 Page
781	Ross, Aimee	Individual	3–72	4–79
782	Dukes, John	Individual	3–72	4–79
783	Stewart, Diane	Individual	3–72	4–79
784	Freel, Elizabeth Sloan	Individual	3–72	4–79
785	Orcholski, Gerald	Individual	3–72	4–79
786	Holmes, Ronald	Individual	3–72	4–79
787	Minde, Cynthia	Individual	3–72	4–79
788	Williams, Susan	Individual	3–72	4–79
789	Curnow, Connie	Individual	3–72	4–79
790	Barnard, Michele L.	Individual	3–72	4–79
791	Stokes, Debra	Individual	3–72	4–79
792	Petrowski, Todd	Individual	3–72	4–79
793	Lisi, Julius	Individual	3–72	4–79
794	Carr, Donna	Individual	3–72	4–79
795	Kempter, Shahido	Individual	3–72	4–79
796	Morris, Ray	Individual	3–72	4–79
797	Marshall, Sandy	Individual	3–72	4–79
798	Loeff, Peter	Individual	3–72	4–79
799	Glazer, Steve	Individual	3–72	4–79
800	Reyes, Fran	Individual	3–72	4–79
801	Berliner, Diane	Individual	3–72	4–79
802	Granich, Sandra	Individual	3–72	4–79
803	Spallina, Jann	Individual	3–72	4–79
804	Thompson, Stephen	Individual	3–72	4–79
805	McLaughlin, Laurie	Individual	3–72	4–79
806	Bruner, Scott M.	Individual	3–72	4–79
807	Key, Lonnie	Individual	3–72	4–79
808	Hoffman, Wendy	Individual	3–72	4–79
809	Slawson, Camly	Individual	3–72	4–79
810	Albright, Evan	Individual	3–72	4–79
811	Wagoner, Robyn	Individual	3–72	4–79
812	Clark, Frances	Individual	3–72	4–79
813	Garcia, Jeffery A.	Individual	3–72	4–79
814	Bassett, Anne	Individual	3–72	4–79
815	Lo, Donovan	Individual	3–71	4–71
816	Munk, David	Individual	3–72	4–79
817	Schneider, Marilyn	Individual	3–72	4–79
818	Clark, Pamela	Individual	3–72	4–79
819	Dowling, Anna	Individual	3–72	4–79
820	Springer, Paul	Individual	3–72	4–79
821	Niel, Roma	Individual	3–72	4–79
822	Johnson, Emily	Individual	3–72	4–79
823	Rocker, Carol	Individual	3–72	4–79
824	Moore, Estella	Individual	3–72	4–79
825	Aguilar, Felix	Individual	3–72	4–79
826	Kosmicki, Teresa	Individual	3–72	4–79
827	Quinn, April	Individual	3–72	4–79
828	De Morelli, David	Individual	3–72	4–79
829	Schacht, Troy	Individual	3–72	4–79
830	Coburn, Bruce	Individual	3–72	4–79
831	Walworth, David	Individual	3–72	4–79

Table 3−1. Index of Comment Documents by Document ID Number (continued)

Document ID Number	Name	Agency/Organization	Chapter 3 Page	Chapter 4 Page
832	Gaede, Marnie	Individual	3–72	4–79
833	Gale, Jennifer	Individual	3–72	4–79
834	Peirce, Roger	Individual	3–72	4–79
835	Luedecke, Alison J.	Individual	3–72	4–79
836	Koo, Rebecca	Individual	3–72	4–79
837	Shanahan, Timothy	Individual	3–72	4–79
838	Loar, Carol	Individual	3–72	4–79
839	Robison, Anne	Individual	3–72	4–79
840	Bell, Ray	Individual	3–72	4–79
841	O'Shea, Desmond	Individual	3–72	4–79
842	Ackerman, Frank A.	Individual	3–72	4–79
843	Emery, Michael	Individual	3–72	4–79
844	Hahn, Dr. Dee	Individual	3–72	4–79
845	Garrett, Katherine	Individual	3–72	4–79
846	Shively, Kelly	Individual	3–72	4–79
847	Scotti, O. Bisogno	Individual	3–72	4–79
848	Apkarian, Jennifer	Individual	3–72	4–79
849	Goldstein, Judith	Individual	3–72	4–79
850	Nicolaisen, Jaime	Individual	3–72	4–79
851	Provenzano, James	Individual	3–72	4–79
852	Perry, Mary Ann Tomasko	Individual	3–72	4–79
853	Galello, Pat	Individual	3–72	4–79
854	Baker, Connie	Individual	3–72	4–79
855	Berman, Nancy	Individual	3–72	4–79
856	Robinson, Saliane	Individual	3–72	4–79
857	Weinhold, Robert	Individual	3–72	4–79
858	Anderson, Russ	Individual	3–72	4–79
859	Riddell, John	Individual	3–72	4–79
860	Lynn, Sheree	Individual	3–72	4–79
861	Wallace, Sondra	Individual	3–72	4–79
862	Kurz, Robert R.	Individual	3–72	4–79
863	Lippert, Virginia	Individual	3–72	4–79
864	Kaplan, Morris	Individual	3–72	4–79
865	Bailey, Ellen	Individual	3–72	4–79
866	Adkins, Elizabeth	Individual	3–72	4–79
867	Ross, Marie	Individual	3–72	4–79
868	Lewis, Gail	Individual	3–72	4–79
869	Indermuehle, Timothy	Individual	3–72	4–79
870	Lawrence, Vicki	Individual	3–72	4–79
871	Weiner, Maury	Individual	3–72	4–79
872	Miller, Nathan A.	Individual	3–72	4–79
873	Zeissler, Chandra	Individual	3–72	4–79
874	Januzelli, David	Individual	3–72	4–79
875	Henze, Christine	Individual	3–72	4–79
876	Odin, Jane	Individual	3–72	4–79
877	Reed, Lisa	Individual	3–72	4–79
878	Wenner, M. W.	Individual	3–72	4–79
879	Masters, Athena	Individual	3–72	4–79
880	Nolte, Linda PhD,	Individual	3–72	4–79
881	Lyman, Anne	Individual	3–72	4–79
882	Goggins, Alan	Individual	3–72	4–79

Table 3−1. Index of Comment Documents by Document ID Number (continued)

Document ID Number	Name	Agency/Organization	Chapter 3 Page	Chapter 4 Page
883	Bryan, D.	Individual	3–72	4–79
884	Stratford, S. J.	Individual	3–72	4–79
885	Rieber, Emily	Individual	3–72	4–79
886	Landau, D.	Individual	3–72	4–79
887	Frazier, Anne	Individual	3–72	4–79
888	Werner, Kirstyn	Individual	3–72	4–79
889	Greeson, Kathryn	Individual	3–72	4–79
890	Busse, Barbara	Individual	3–72	4–79
891	Watkins, Billie	Individual	3–72	4–79
892	Richards, Susan	Individual	3–72	4–79
893	Healy, Leah	Individual	3–72	4–79
894	Hall, Brook & Linda	Individual	3–72	4–79
895	Weller, Ross	Individual	3–72	4–79
896	Sears, Michael	Individual	3–72	4–79
897	Manewal, William	Individual	3–72	4–79
898	McDermott, Ann	Individual	3–72	4–79
899	Nacheff, Marni	Individual	3–72	4–79
900	Ruegg, Leona	Individual	3–72	4–79
901	Feuer, Heather	Individual	3–72	4–79
902	Stewart, Richard	Individual	3–72	4–79
903	Griest, Fred	Individual	3–72	4–79
904	Ransom, Jill	Individual	3–72	4–79
905	Bowman, Nan Singh	Individual	3–72	4–79
906	Liese, Suzanne	Individual	3–72	4–79
907	Harris, Kelly	Individual	3–72	4–79
908	Caico, Anthony	Individual	3–72	4–79
909	Warren, Betsie	Individual	3–72	4–79
910	Cooney, Erin	Individual	3–72	4–79
911	Confectioner, Vira	Individual	3–72	4–79
912	Anelli, Darla	Individual	3–72	4–79
913	Reich, Andrew	Individual	3–72	4–79
914	Jenkins, Basil	Individual	3–72	4–79
915	Brown, Ronald	Individual	3–72	4–79
916	Bretz, William	Individual	3–72	4–79
917	Klohr, Antonia	Individual	3–72	4–79
918	Bousseau, M.	Individual	3–72	4–79
919	Root, Charlene	Individual	3–72	4–79
920	Bowman, Margaret	Individual	3–72	4–79
921	Speer, Kirsten	Individual	3–72	4–79
922	Maccallum, Crawford	Individual	3–72	4–79
923	Cramer, Mary Ann	Individual	3–72	4–79
924	Aguirre, Patricia	Individual	3–72	4–79
925	Day-Evers, Julianne	Individual	3–72	4–79
926	Griffithq, Dian	Individual	3–72	4–79
927	Melin, Ronnie	Individual	3–72	4–79
928	Palmer, Mara	Individual	3–72	4–79
929	Faich, Ron	Individual	3–72	4–79
930	Millhollen, Candice	Individual	3–72	4–79
931	Dougherty, Mona	Individual	3–72	4–79
932	Scott, Sidney Ramsden	Individual	3–72	4–79
933	Harrod, Katherine	Individual	3–72	4–79

Table 3−1. Index of Comment Documents by Document ID Number (continued)

Document ID Number	Name	Agency/Organization	Chapter 3 Page	Chapter 4 Page
934	Wiser, Steven J.	Individual	3–72	4–79
935	Brittenbach, Dennis	Individual	3–72	4–79
936	Morton, Jeffery	Individual	3–72	4–79
937	Harrour, Linda	Individual	3–72	4–79
938	Herman, Kathy	Individual	3–72	4–79
939	Kaehn, Max	Individual	3–72	4–79
940	Graham, Kimberley	Individual	3–72	4–79
941	V, Sakura	Individual	3–72	4–79
942	Miller, Paul	Individual	3–72	4–79
943	Waldref, Lois	Individual	3–72	4–79
944	Tracey, Kayta	Individual	3–72	4–79
945	Keeney, Sharon	Individual	3–72	4–79
946	Dunn, Sheryl	Individual	3–72	4–79
947	Claudio, Hereen	Individual	3–72	4–79
948	Young, Chad	Individual	3–72	4–79
949	Shockley, Mark	Individual	3–72	4–79
950	Gardiner, Shayna	Individual	3–72	4–79
951	Levin, Robert	Individual	3–72	4–79
952	Spensley, Gail	Individual	3–72	4–79
953	Youngson, Patricia	Individual	3–72	4–79
954	Harper, Mark	Individual	3–72	4–79
955	Perryman, Joann	Individual	3–72	4–79
956	Schweitzer, Hilde	Individual	3–72	4–79
957	Dameron, Susan	Individual	3–72	4–79
958	Chavez, Kerry	Individual	3–72	4–79
959	Carr, Gaile & Bob	Individual	3–72	4–79
960	McKuhen, Susan	Individual	3–72	4–79
961	Anderson, Clifford	Individual	3–72	4–79
962	Heinrichsdorff, G.	Individual	3–72	4–79
963	Kerr, Barbara	Individual	3–72	4–79
964	Jenkins, Jon	Individual	3–72	4–79
965	Rolland, Terri	Individual	3–72	4–79
966	Bertetta, Thomas	Individual	3–72	4–79
967	Gibson, Jim	Individual	3–72	4–79
968	Sutphin, Madelaine	Individual	3–72	4–79
969	Frank, Lee	Individual	3–72	4–79
970	Levy, Mark	Individual	3–72	4–79
971	Taylor, Robert	Individual	3–72	4–79
972	France, Catherine	Individual	3–72	4–79
973	Holland, Patrick W.	Individual	3–72	4–79
974	Banoczy, Jennifer	Individual	3–72	4–79
975	Van Zee, Drew	Individual	3–72	4–79
976	Piloyan, Diana	Individual	3–72	4–79
977	Feldman, Mark	Individual	3–72	4–79
978	Bright, Jeff	Individual	3–72	4–79
979	Enevoldsen, David	Individual	3–72	4–79
980	Olson, Ruth	Individual	3–72	4–79
981	La Follette, Peter	Individual	3–72	4–79
982	Brzeczek, Amy	Individual	3–72	4–79
983	Moore, Lynne	Individual	3–72	4–79
984	Marine, Duke	Individual	3–72	4–79

Table 3−1. Index of Comment Documents by Document ID Number (continued)

Document ID Number	Name	Agency/Organization	Chapter 3 Page	Chapter 4 Page
985	Dee, Diana	Individual	3–72	4–79
986	Cavallo, Sharon	Individual	3–72	4–79
987	Daniels, Patricia	Individual	3–72	4–79
988	Gonzalez, Autumn	Individual	3–72	4–79
989	Muller, Audrey	Individual	3–72	4–79
990	Silvers, Catherine	Individual	3–72	4–79
991	Crowley, Lawrence	Individual	3–72	4–79
992	Bennett, Jean	Individual	3–72	4–79
993	Tonsberg, B.	Individual	3–72	4–79
994	Greenman, Jessea	Individual	3–72	4–79
995	Brost, Hety	Individual	3–72	4–79
996	Follingstad, Gretel	Individual	3–72	4–79
997	Brown, Kimberley	Individual	3–72	4–79
998	Edmonson, Scott	Individual	3–72	4–79
999	Buech, Heidi	Individual	3–72	4–79
1000	Lewis, Donna	Individual	3–72	4–79
1001	Morander, Billy	Individual	3–72	4–79
1002	Strauss, Mark	Individual	3–72	4–79
1003	Shaw, Michael	Individual	3–72	4–79
1004	Sebastian, Joseph	Individual	3–72	4–79
1005	Sakacs, John	Individual	3–72	4–79
1006	Perkins, Randi	Individual	3–72	4–79
1007	Rose, Pandora	Individual	3–72	4–79
1008	Ferguson, Tom	Individual	3–72	4–79
1009	Tom, Janette	Individual	3–72	4–79
1010	Rucker, Christi	Individual	3–72	4–79
1011	Scianna, Maria	Individual	3–72	4–79
1012	Bordenave, Michael	Individual	3–72	4–79
1013	Brennan, Matt	Individual	3–72	4–79
1014	Williams, Charles	Individual	3–72	4–79
1015	Brush, Debbie	Individual	3–72	4–79
1016	Collins, Sandra	Individual	3–72	4–79
1017	Larkin, Laura	Individual	3–72	4–79
1018	Boer, Evert	Individual	3–72	4–79
1019	Terhune, Jennifer	Individual	3–72	4–79
1020	Chan, Kai	Individual	3–72	4–79
1021	Swan, Rebecca	Individual	3–72	4–79
1022	Harte, Mary Ellen	Individual	3–72	4–79
1023	Pierce, Roger	Individual	3–72	4–79
1024	Futral, Joel	Individual	3–72	4–79
1025	Ackerman, Beverly	Individual	3–72	4–79
1026	Feijo, Babi	Individual	3–72	4–79
1027	Jelinek, Alex	Individual	3–72	4–79
1028	Sigmund, Chandra	Individual	3–72	4–79
1029	Laporte, Ryan	Individual	3–72	4–79
1030	Pier, Mollie	Individual	3–72	4–79
1031	Caton, Barbara	Individual	3–72	4–79
1032	Smith-Hileman, Joanne	Individual	3–72	4–79
1033	Overholt, Roger	Individual	3–72	4–79
1034	Peterson, Kimberly	Individual	3–72	4–79
1035	Williams, Bob	Individual	3–72	4–79

Table 3−1. Index of Comment Documents by Document ID Number (continued)

Document ID Number	Name	Agency/Organization	Chapter 3 Page	Chapter 4 Page
1036	Anderson, Jeffry	Individual	3–72	4–79
1037	Hall, Sarah Jane	Individual	3–72	4–79
1038	Johnson, John	Individual	3–72	4–79
1039	Lareau, Audrey	Individual	3–72	4–79
1040	Kennedy, Bill	Individual	3–72	4–79
1041	Dillon, Deb	Individual	3–72	4–79
1042	Sams, James	Individual	3–72	4–79
1043	Kelly, Alice	Individual	3–72	4–79
1044	Sefton, John	Individual	3–72	4–79
1045	Weimer, Margaret	Individual	3–72	4–79
1046	Hetherington, Lance	Individual	3–72	4–79
1047	Malmuth, Sonja	Individual	3–72	4–79
1048	Melton, Michelle	Individual	3–72	4–79
1049	Scott, John	Individual	3–72	4–79
1050	Evans, Michael W.	Individual	3–72	4–79
1051	Rytina, Jenna	Individual	3–72	4–79
1052	La Frinere, Rochelle	Individual	3–72	4–79
1053	Kline, Laree	Individual	3–72	4–79
1054	Trimble, Robert C.	Individual	3–72	4–79
1055	Kaku, Agness	Individual	3–72	4–79
1056	Evans, Dinda	Individual	3–72	4–79
1057	Santana, Kathryn	Individual	3–72	4–79
1058	Kirby, Rya	Individual	3–72	4–79
1059	Delker, Jennifer	Individual	3–72	4–79
1060	Hung, Eumy	Individual	3–72	4–79
1061	Crews, Amy	Individual	3–72	4–79
1062	Sherwood, Maris	Individual	3–72	4–79
1063	Bookidis, Paul	Individual	3–72	4–79
1064	Erickson, Karen	Individual	3–72	4–79
1065	Foss, Janice	Individual	3–72	4–79
1066	Raghav, Shyla	Individual	3–72	4–79
1067	Winterer, Ted	Individual	3–72	4–79
1068	Whitnah, Claudia	Individual	3–72	4–79
1069	Gagomiros, Keith	Individual	3–72	4–79
1070	Rudolph, Ana	Individual	3–72	4–79
1071	Oravec, Lora J.	Individual	3–72	4–79
1072	Tabib, Michael	Individual	3–72	4–79
1073	Ives, Brandon	Individual	3–72	4–79
1074	Zahller, Guy	Individual	3–72	4–79
1075	Mungle, Terri	Individual	3–72	4–79
1076	Pan, Pinky Jain	Individual	3–72	4–79
1077	Bolt, Patricia	Individual	3–72	4–79
1078	Viglia, Peter	Individual	3–72	4–79
1079	Weber, Majill-Lee	Individual	3–72	4–79
1080	Parisi-Smith, Nicole	Individual	3–72	4–79
1081	Lien, David	Individual	3–72	4–79
1082	Harrington, Chris	Individual	3–72	4–79
1083	Maddox, Melvyn	Individual	3–72	4–79
1084	Kirschling, Karen	Individual	3–72	4–79
1085	Barker, Helen	Individual	3–72	4–79
1086	Seymour, Laurie S.	Individual	3–72	4–79

Table 3−1. Index of Comment Documents by Document ID Number (continued)

Document ID Number	Name	Agency/Organization	Chapter 3 Page	Chapter 4 Page
1087	Campbell, Amy	Individual	3–72	4–79
1088	Mclean, Sarah	Individual	3–72	4–79
1089	Folsom, Susan	Individual	3–72	4–79
1090	Starke-Livermore, Shanna	Individual	3–72	4–79
1091	Osman, Kristen	Individual	3–72	4–79
1092	Ganz, Shiela	Individual	3–72	4–79
1093	DaSilva, Ena	Individual	3–72	4–79
1094	Stimmel, Rodney	Individual	3–72	4–79
1095	Jones, Allan B.	Individual	3–72	4–79
1096	Doob, Jennifer	Individual	3–72	4–79
1097	Hudgins, William G.	Individual	3–72	4–79
1098	Booth, Howard	Individual	3–72	4–79
1099	Rubens, Mari	Individual	3–72	4–79
1100	Pennington, Heather	Individual	3–72	4–79
1101	Urani, Thomas B.	Individual	3–72	4–79
1102	DuPont, Collette	Individual	3–72	4–79
1103	Wagner, G. Blu	Individual	3–72	4–79
1104	Seidler, Chuck	Individual	3–72	4–79
1105	Zarchin, Paul	Individual	3–72	4–79
1106	Navarrete, Paloma	Individual	3–72	4–79
1107	de Greiff, Juan	Individual	3–72	4–79
1108	Tutihasi, R-Laurraine	Individual	3–72	4–79
1109	Bremner, Marlene	Individual	3–72	4–79
1110	Hanley, Jim	Individual	3–72	4–79
1111	Jenvey, Lottie	Individual	3–72	4–79
1112	Riley, Deborah Cloven	Individual	3–72	4–79
1113	Williams, Seanna	Individual	3–72	4–79
1114	Wolters, Mel	Individual	3–72	4–79
1115	Carlson, Cathleen A.	Individual	3–72	4–79
1116	Stone, Jim	Individual	3–72	4–79
1117	Woodcock, Angela	Individual	3–72	4–79
1118	Woodcock, Angela	Deleted-Duplicate of Document #1117		
1119	Wolf, Rachel	Individual	3–72	4–79
1120	Tuckman, Roy	Individual	3–72	4–79
1121	Reimers, Andy	Individual	3–72	4–79
1122	Scherek, Roxane	Individual	3–72	4–79
1123	Fischer, John	Individual	3–72	4–79
1124	Spotts, Richard	Individual	3–72	4–79
1125	Irwin, Craig	Individual	3–72	4–79
1126	Khalsa, Mha Atma	Individual	3–72	4–79
1127	Roberson, Keegan	Individual	3–72	4–79
1128	Macdonald, BC	Individual	3–72	4–79
1129	Bunch, Christopher	Individual	3–72	4–79
1130	Moore, Jackie	Individual	3–72	4–79
1131	Crowell, Sam	Individual	3–72	4–79
1132	Blalack, Russell	Individual	3–72	4–79
1133	Riddle, Donna	Individual	3–72	4–79
1134	Thomas, Kim	Individual	3–72	4–79
1135	Brownrigg, Sarah	Individual	3–72	4–79
1136	Johnston, Bob	Individual	3–72	4–79
1137	Manning, Alexis	Individual	3–72	4–79

Table 3−1. Index of Comment Documents by Document ID Number (continued)

Document ID Number	Name	Agency/Organization	Chapter 3 Page	Chapter 4 Page
1138	Thomas, Lori	Individual	3–72	4–79
1139	Key, Lynda	Individual	3–72	4–79
1140	Kite, Karen	Individual	3–72	4–79
1141	Barnes, Joel	Individual	3–72	4–79
1142	Papi, Maria	Individual	3–72	4–79
1143	March, Marie	Individual	3–72	4–79
1144	Clark, Brad	Individual	3–72	4–79
1145	Spitz, Marlene T.	Individual	3–72	4–79
1146	Garland, Wayne	Individual	3–72	4–79
1147	Price, Hedy	Individual	3–72	4–79
1148	Havens, Craig	Individual	3–72	4–79
1149	York, Carole	Individual	3–72	4–79
1150	Jones, Penni	Individual	3–72	4–79
1151	Romero, Monika	Individual	3–72	4–79
1152	Davidson, Jon	Individual	3–72	4–79
1153	Fayman, Bruce	Individual	3–72	4–79
1154	Huser, Verne	Individual	3–72	4–79
1155	Keefer, Nina	Individual	3–72	4–79
1156	Newcomer, David	Individual	3–72	4–79
1157	Dupre, Christine	Individual	3–72	4–79
1158	Rodda, Beth	Individual	3–72	4–79
1159	Bajwa, Raghbir	Individual	3–72	4–79
1160	Chase, Lisa	Individual	3–72	4–79
1161	Jempel, Marilyn	Individual	3–72	4–79
1162	Wayne, Jerry	Individual	3–72	4–79
1163	Breiding, Joan	Individual	3–72	4–79
1164	Khan, Nezer	Individual	3–72	4–79
1165	Markus, Mary	Individual	3–72	4–79
1166	Samenfeld, Herbert	Individual	3–72	4–79
1167	McMillan, Erik	Individual	3–72	4–79
1168	Langdon, Christine	Individual	3–71	4–71
1169	Brown, Myrna	Individual	3–72	4–79
1170	Wong, Teresa	Individual	3–72	4–79
1171	Cobb, Dean	Individual	3–72	4–79
1172	Randall, Holly	Individual	3–72	4–79
1173	Verry, James	Individual	3–72	4–79
1174	Vangi-Stern, Eva	Individual	3–72	4–79
1175	Rosher, Ellen	Individual	3–72	4–79
1176	Soraghan, Conor	Individual	3–72	4–79
1177	Dudrick, Roseann	Individual	3–72	4–79
1178	Henderson, Sharrie	Individual	3–72	4–79
1179	Berman, Irwin and Lila	Individual	3–72	4–79
1180	Berman, Lila and Irv	Individual	3–72	4–79
1181	Spencer, Gayle	Individual	3–72	4–79
1182	Declario, A.	Individual	3–72	4–79
1183	Adams, Lani J.	Individual	3–72	4–79
1184	Monterroso, Sara	Individual	3–72	4–79
1185	Russell, Dorothy	Individual	3–72	4–79
1186	Carren, Claire	Individual	3–72	4–79
1187	Sheets, Kevin	Individual	3–72	4–79
1188	Kearns, D	Individual	3–72	4–79

Table 3−1. Index of Comment Documents by Document ID Number (continued)

Document ID Number	Name	Agency/Organization	Chapter 3 Page	Chapter 4 Page
1189	Schuler, Urs	Individual	3–72	4–79
1190	Landin, Mireya	Individual	3–72	4–79
1191	Carr-Fingerle, Joelyn	Individual	3–72	4–79
1192	Diehl, Marina	Individual	3–72	4–79
1193	McClintock, Catherine	Individual	3–72	4–79
1194	Parker, Vaughan	Individual	3–72	4–79
1195	Seltzer, Robert	Individual	3–72	4–79
1196	Dennis, Larry	Individual	3–72	4–79
1197	Rousselot, Patrick	Individual	3–72	4–79
1198	Kleinert, Julie	Individual	3–72	4–79
1199	Embrey, Stephanie	Individual	3–72	4–79
1200	Fein, M D	Individual	3–72	4–79
1201	Nabas, Jeff	Individual	3–72	4–79
1202	Weisz, Russel	Individual	3–72	4–79
1203	Morgan, Jacob	Individual	3–72	4–79
1204	Saltzman, Barry	Individual	3–72	4–79
1205	Richardson, Matthew	Individual	3–72	4–79
1206	Weymouth, Douglass	Individual	3–72	4–79
1207	Newton, Peter	Individual	3–72	4–79
1208	Triplett, Tia	Individual	3–72	4–79
1209	Sankey, Diana	Individual	3–72	4–79
1210	Peirce, Susan	Individual	3–72	4–79
1211	Grossman, Paul B	Individual	3–72	4–79
1212	Karsh, Lynn	Individual	3–72	4–79
1213	Mierau, Gary	Individual	3–72	4–79
1214	Basnar, Lee	Individual	3–72	4–79
1215	Burian-Mohr, Eleanor	Individual	3–72	4–79
1216	Patrickson, Shela	Individual	3–72	4–79
1217	Bauer, Gwynne	Individual	3–72	4–79
1218	Hicks, David	Individual	3–72	4–79
1219	Suhy, Jim	Individual	3–72	4–79
1220	Aguado, Barbara	Individual	3–72	4–79
1221	Huupponen, Tristen	Individual	3–72	4–79
1222	Ewing, Tracy	Individual	3–72	4–79
1223	Roden, Tessa	Individual	3–72	4–79
1224	Cuddeback, Ken	Individual	3–72	4–79
1225	Drake, Mercy	Individual	3–72	4–79
1226	Noah, Ian	Individual	3–72	4–79
1227	Hamel, Bob	Individual	3–72	4–79
1228	Fielder, Lynn	Individual	3–72	4–79
1229	Dunn, Eddy	Individual	3–72	4–79
1230	Carmichael, Jan	Individual	3–72	4–79
1231	Trujillo, Rebecca	Individual	3–72	4–79
1232	Anderson, Corina	Individual	3–72	4–79
1233	Brook, Dan	Dept of Soc	3–72	4–79
1234	Fahlberg, Maureen	Individual	3–72	4–79
1235	Riley, Callie	Individual	3–72	4–79
1236	Clark, Dustin	Individual	3–72	4–79
1237	Cupp, Jonathan	Individual	3–72	4–79
1238	Moore, Judy	Individual	3–72	4–79
1239	Hayes, Sara	Individual	3–72	4–79

Table 3−1. Index of Comment Documents by Document ID Number (continued)

Document ID Number	Name	Agency/Organization	Chapter 3 Page	Chapter 4 Page
1240	Evans, Lauren	Individual	3–72	4–79
1241	Riley, Raymond	Individual	3–72	4–79
1242	Miller, Lisa	Individual	3–72	4–79
1243	Blackwell, Randi	Individual	3–72	4–79
1244	Ellis, David	Individual	3–72	4–79
1245	Woo, Howard	Individual	3–72	4–79
1246	Wahose, Mare	Individual	3–72	4–79
1247	Samuels, Harold A	Individual	3–72	4–79
1248	Marsten, Catherine	Individual	3–72	4–79
1249	Collins, Brian	Individual	3–72	4–79
1250	Smeal, Mindy A	Individual	3–72	4–79
1251	Kaczmarek, Periel	Individual	3–72	4–79
1252	DeBo/Stauffer, Melanie	Individual	3–72	4–79
1253	Marugg, Cynthia	Individual	3–72	4–79
1254	Peer, Kevin	Individual	3–72	4–79
1255	Clark, Dustin	Deleted-Duplicate of Document #1236		
1256	Shelton, Brand	Individual	3–72	4–79
1257	Overstreet, Jan	Individual	3–72	4–79
1258	Wallner, Mary Ann	Individual	3–72	4–79
1259	Mason, Barbara	Individual	3–72	4–79
1260	Stutz, Kathleen G	Individual	3–72	4–79
1261	Hudson, Joan	Individual	3–72	4–79
1262	Nemeth, Teresa	Individual	3–72	4–79
1263	Gauthier-Campbell, Catherine	Individual	3–72	4–79
1264	Heintzelman, Chris	Individual	3–72	4–79
1265	Wohl, Ellen	Department of Earth Resources Colorado State University	3–72	4–79
1266	King, Jayne L	Individual	3–72	4–79
1267	Drake, Cindi	Individual	3–72	4–79
1268	Berglas, Silvia	Individual	3–72	4–79
1269	Bryant, Richard	Individual	3–72	4–79
1270	Kluscor, Carmen	Individual	3–72	4–79
1271	Dicamillo, Jessica	Individual	3–72	4–79
1272	M., Lexi	Individual	3–72	4–79
1273	Kollmeyer, Charlotte	Individual	3–72	4–79
1274	Warne, Pete	Individual	3–72	4–79
1275	O'Donnell, Kelly	Individual	3–72	4–79
1276	Valenzuela, Andrea	Individual	3–72	4–79
1277	Harper, Laura	Individual	3–72	4–79
1278	Pierce, Deborah	Individual	3–72	4–79
1279	Young, Mary	Individual	3–72	4–79
1280	Dzienius, Susan	Individual	3–72	4–79
1281	Williams, Janet	Individual	3–72	4–79
1282	Lauder, Leona L	Individual	3–72	4–79
1283	Whitcomb, Matthew S	Individual	3–72	4–79
1284	Lyon, Jay	Individual	3–72	4–79
1285	Wilber, Douglas	Individual	3–72	4–79
1286	Mallard, Angela	Individual	3–72	4–79
1287	Miller, Nancy	Individual	3–72	4–79
1288	Bernacchi, Carol	Individual	3–72	4–79
1289	Kay, Joni	Individual	3–72	4–79

Table 3−1. Index of Comment Documents by Document ID Number (continued)

Document ID Number	Name	Agency/Organization	Chapter 3 Page	Chapter 4 Page
1290	Zoline, Abigail	Individual	3–72	4–79
1291	Latham, Zach	Individual	3–72	4–79
1292	Whitcomb, Paulette	Individual	3–72	4–79
1293	Heinold, Christian	Individual	3–72	4–79
1294	Reilly, Robert	Individual	3–72	4–79
1295	Lee, Debra	Individual	3–72	4–79
1296	Burger, Bitsa	Individual	3–72	4–79
1297	Goitein, Ernest	Individual	3–72	4–79
1298	Brandon, Victoria	Individual	3–72	4–79
1299	Gilland, James	Individual	3–72	4–79
1300	Plotkin, Christine	Individual	3–72	4–79
1301	Roach, Kenneth	Individual	3–72	4–79
1302	Hoxeng, Jessica	Individual	3–72	4–79
1303	Landowne, Deborah	Individual	3–72	4–79
1304	Houghton, Jack	Individual	3–72	4–79
1305	Pena, Debbie	Individual	3–72	4–79
1306	Segall-Anable, Linda	Individual	3–72	4–79
1307	Brown, Brenda	Individual	3–72	4–79
1308	Laplaca, Nancy	Individual	3–72	4–79
1309	Webber, Rita	Individual	3–72	4–79
1310	Buss, Jennie	Individual	3–72	4–79
1311	Fritzler, Cyndi	Individual	3–72	4–79
1312	Hahler, Pamela	Individual	3–72	4–79
1313	Young, Jennifer	Individual	3–72	4–79
1314	Hotchkiss, John	Individual	3–72	4–79
1315	Esmond, Scott	Individual	3–72	4–79
1316	Pollock, Jeri	Individual	3–72	4–79
1317	Johnson, Kim	Individual	3–72	4–79
1318	Sanford, Julie	Individual	3–72	4–79
1319	Benson, Richard	Individual	3–72	4–79
1320	Kemmerer, David	Individual	3–72	4–79
1321	Johnson, Kim	Deleted-Duplicate of Document #1317		
1322	Vertrees, Gerald	Individual	3–72	4–79
1323	Signorile, Karen	Individual	3–72	4–79
1324	Taylor, Steven	Individual	3–72	4–79
1325	Conroy, Thomas	Individual	3–72	4–79
1326	Pierpont, Leslie	Individual	3–72	4–79
1327	Neuhauser, Alice	Individual	3–72	4–79
1328	Tyler, Steve	Individual	3–72	4–79
1329	Souza, Michael	Individual	3–72	4–79
1330	Michals, Jessica	Individual	3–72	4–79
1331	Donatoni, Matthew	Individual	3–72	4–79
1332	Burgett, Jessica	Individual	3–72	4–79
1333	Pollard, Jason	Individual	3–72	4–79
1334	Thomas, Kevin	Individual	3–72	4–79
1335	Kemmerer, Carol	Individual	3–72	4–79
1336	Gerety, Sheryl Lynn	Individual	3–72	4–79
1337	Firshein, David	Individual	3–72	4–79
1338	Galloway, Jeanette	Individual	3–72	4–79
1339	Specht, Chris	Individual	3–72	4–79
1340	Evans, Nancy	Individual	3–72	4–79

Table 3−1. Index of Comment Documents by Document ID Number (continued)

Document ID Number	Name	Agency/Organization	Chapter 3 Page	Chapter 4 Page
1341	Cahill, Tom	Individual	3–72	4–79
1342	Schilder, Mary	Individual	3–72	4–79
1343	Womble, Jeffrey	Individual	3–72	4–79
1344	Meierdierck, Jay	Individual	3–72	4–79
1345	Oden, Beth	Individual	3–72	4–79
1346	Schaffer, Gabe	Individual	3–72	4–79
1347	Reynolds, Debra	Individual	3–72	4–79
1348	Cerello, Robert M	Individual	3–72	4–79
1349	Piper, Gayle	Individual	3–72	4–79
1350	Lyon, Kelly	Individual	3–72	4–79
1351	Thing, Susan	Individual	3–72	4–79
1352	Cirina, Cathy	Individual	3–72	4–79
1353	Arikat, Amin	Individual	3–72	4–79
1354	Barile, Dominic	Individual	3–72	4–79
1355	Turek, Gabriella	Individual	3–72	4–79
1356	Hempel, Marilyn	Individual	3–72	4–79
1357	Marsh, Marie	Individual	3–72	4–79
1358	Musco, Danielle	Point Loma Nazarene University	3–71	4–71
1359	Ferullo, Michael	Deleted-Not an EIS comment		
1360	Saith, Arun	Individual	3–71	4–71
1361	Le, Timmy	Individual	3–71	4–71
1362	Gonzalez, Michael BA, BS, MBA, JD	UC San Diego	3–71	4–71
1363	Nyman, Suiko Dam	Individual	3–71	4–71
1364	Kambak, Jackie	Individual	3–72	4–78
1365	Luckyman	Individual	3–71	4–71
1366	Isensee, Chris	Individual	3–72	4–79
1367	Thompson, Mr.	Deleted-Duplicate of Document #421		
1368	Davenport, James H.	Colorado River Commission of Nevada	3–468	4–736
1369	Hunter, Duncan	Deleted-Not an EIS comment		
1370	Bostic, Wayne	Individual	3–71	4–71
1371	Mishiwiec, Sr., David F.	Individual	3–71	4–71
1372	Alexander, Bob	Individual	3–71	4–71
1373	Colosimo, Joe	Individual	3–72	4–78
1374	Hartung, Doug	Individual	3–71	4–71
1375	Price, Roberta	Individual	3–72	4–78
1376	Farhana	Individual	3–71	4–71
1377	Leichtling, Suzanne	Individual	3–73	4–81
1378	Hughes, Shannon	Individual	3–73	4–81
1379	Breiding, Joan	Individual	3–73	4–81
1380	Burger, Bitsa	Individual	3–73	4–81
1381	Bernstein, Bob	Individual	3–73	4–81
1382	Baughman, Jamie	Individual	3–73	4–81
1383	Gustus, Robin	Individual	3–73	4–81
1384	Burton, G.	Individual	3–73	4–81
1385	Fedorchuk, Justina	Individual	3–73	4–81
1386	Burbridge, Scott	Individual	3–73	4–81
1387	Bernstein, Linda	Individual	3–73	4–81
1388	Rogers, Lila	Individual	3–73	4–81
1389	Copeland, Lisa	Individual	3–73	4–81

Table 3−1. Index of Comment Documents by Document ID Number (continued)

Document ID Number	Name	Agency/Organization	Chapter 3 Page	Chapter 4 Page
1390	Sobanski, Sandra	Individual	3–73	4–81
1391	Howell, Jr., Ruben J.	Individual	3–73	4–81
1392	Zlevor, JoAnne	Individual	3–73	4–81
1393	Nadelman, Fred	Individual	3–73	4–81
1394	Chase, Maureen	Individual	3–73	4–81
1395	Wells, Kimball	Individual	3–73	4–81
1396	Feinstein, Dianne	U.S. Senate	3–471	4–739
1397	Rivera, Gloria A.	Imperial Irrigation District	3–71	4–71
1398	Smith, Darrell H.	Salt Lake County Council of Governments	3–473	4–741
1399	Morgan, Edward C.	Town of Carefree	3–71	4–71
1400	Zimmerman, Gerald R.	Colorado River Board of California	3–478	4–742
1401	Smith, Edward D. "Tito"	Chemehuevi Indian Tribe	3–71	4–71
1402	McDowell, Nora	Fort Mojave Indian Tribe	3–71	4–71
1403	Hedden, Bill	Deleted-Not an EIS comment		
1404	Fields, Sarah M.	Individual	3–482	4–746
1405	Brian, Danielle	Project on Government Oversight	3–492	4–764
1406	Dobyns, Mary	Individual	3–71	4–71
1407	Goodlove, Glenn	Individual	3–71	4–71
1408	Schulze, Jane Carney	Individual	3–71	4–71
1409	Pinzon, Genny	Individual	3–72	4–78
1410	Hobza, Tony	Individual	3–71	4–71
1411	Hurd, Thomas	Individual	3–72	4–78
1412	Holmes, Jennifer	Individual	3–71	4–71
1413	Kantola, Angela T.	Individual	3–71	4–71
1414	Elliott, Rob	Arizona Raft Adventures, Inc.	3–72	4–78
1415	Fred	Individual	3–71	4–71
1416	Henry, Will	Point Loma Nazarene University	3–71	4–71
1417	Pamper, John	Individual	3–72	4–78
1418	Castlevega	Individual	3–71	4–71
1419	Diener, Evelyn	Individual	3–71	4–71
1420	Games, John	Individual	3–72	4–78
1421	Cowie, Laura	Individual	3–71	4–71
1422	Paul, Courtney	Individual	3–71	4–71
1423	Schroeder, Sandra	Individual	3–71	4–71
1424	Paul, Nichole	Individual	3–71	4–71
1425	Hobbs, Terri	Individual	3–71	4–71
1426	O'Connell, Colleen	Individual	3–71	4–71
1427	Wong, Lauren	Individual	3–71	4–71
1428	Bray, Emily	Individual	3–71	4–71
1429	Sussman, Deb	Individual	3–71	4–71
1430	Darke, John	Individual	3–494	4–766
1431	Landrum, Sheryl	Individual	3–71	4–71
1432	Gosnell, James	Individual	3–495	4–767
1433	Inaba, Nancy	Individual	3–71	4–71
1434	Bailey, Janeen and Wyane	Individual	3–71	4–71
1435	Ridder, Ross	Direct Marketing Resources, Inc.	3–71	4–71
1436	Baldwin, Rob	Individual	3–72	4–78
1437	Repp, David	Individual	3–71	4–71

Table 3−1. Index of Comment Documents by Document ID Number (continued)

Document ID Number	Name	Agency/Organization	Chapter 3 Page	Chapter 4 Page
1438	Rajgopal, Rohini	Individual	3–71	4–71
1439	Waclawik, Matthew	Individual	3–71	4–71
1440	Moore, Marsha	Individual	3–71	4–71
1441	Pembersee, Gary	Individual	3–71	4–71
1442	Juskalian, Lee	Individual	3–71	4–71
1443	Koda, Dennis	Individual	3–71	4–71
1444	Keck, Marcella L.	Individual	3–71	4–71
1445	Roache, Kevin	Individual	3–71	4–71
1446	Evans, Laura	Individual	3–71	4–71
1447	Call, Russ	Individual	3–71	4–71
1448	C., J.A.	Individual	3–71	4–71
1449	Smolin, Ron	Individual	3–71	4–71
1450	Joyal, Lou Ann	Individual	3–72	4–79
1451	Voss, Barbara	Individual	3–72	4–79
1452	Waring, Dawn	Individual	3–72	4–79
1453	Ransom, G. Harry	Individual	3–72	4–79
1454	Graham, Ariel	Individual	3–72	4–79
1455	Baker, Tanya	Individual	3–72	4–79
1456	Hanks, Kim	Individual	3–72	4–79
1457	Sanders, Gary	Individual	3–72	4–79
1458	Schlomberg, Kurt	Individual	3–72	4–79
1459	Pasichnyk, Richard	Individual	3–72	4–79
1460	Faulk, Janeen	Individual	3–72	4–79
1461	Denny, Rachael	Individual	3–72	4–79
1462	Deutsch, Eileen	Individual	3–72	4–79
1463	Groome, Malcolm	Individual	3–72	4–79
1464	Garvin, Michael	Individual	3–72	4–79
1465	Dye, Claire	Individual	3–72	4–79
1466	Norton, Asiel	Individual	3–72	4–79
1467	Benson, Sheila	Individual	3–72	4–79
1468	Kitchin, Millie	Individual	3–72	4–79
1469	Estes, Douglas	Individual	3–72	4–79
1470	Landis-Hanna, Amanda	Individual	3–72	4–79
1471	Shockley, Mark	Deleted-Duplicate of Document #949		
1472	Quilici, Jill	Individual	3–72	4–79
1473	Taylor, Linda Lee	Individual	3–72	4–79
1474	Wiget Ii, Francis X.	Individual	3–72	4–79
1475	Kjonaas, Raechel	Individual	3–72	4–79
1476	Greiner, Tony	Individual	3–72	4–79
1477	Brown, Keri	Individual	3–72	4–79
1478	Zamora, Delilah	Individual	3–72	4–79
1479	Salgado, Diego	Individual	3–72	4–79
1480	Fuller, Michelle	Individual	3–72	4–79
1481	Ryan, Bela	Individual	3–72	4–79
1482	Tamminen, Lenn	Individual	3–72	4–79
1483	Strawn, Lori	Individual	3–72	4–79
1484	Zeldas, Sandy	Individual	3–72	4–79
1485	Leenerts, Kathleen	Individual	3–72	4–79
1486	Parkinson, Jean	Individual	3–72	4–79
1487	Enders, Todd	Individual	3–72	4–79
1488	Greene, Jack	Individual	3–72	4–79

Table 3−1. Index of Comment Documents by Document ID Number (continued)

Document ID Number	Name	Agency/Organization	Chapter 3 Page	Chapter 4 Page
1489	Bergman, Barbie	Individual	3–72	4–79
1490	Heilpern, Slim	Individual	3–72	4–79
1491	Soderlind, Johan	Individual	3–72	4–79
1492	Hollister, Richard	Individual	3–72	4–79
1493	White, Sharlene	Individual	3–72	4–79
1494	Peeplez, Kelle	Individual	3–72	4–79
1495	Bogear, Lee A.	Individual	3–72	4–79
1496	Kirschbaum, Norton and Sara	Individual	3–72	4–79
1497	Bushnell, Martha	Individual	3–72	4–79
1498	Rashall, Rosa	Individual	3–72	4–79
1499	Williams, Jane	California Communities Against Toxics	3–71	4–71
1500	Harper, David	Mohave Cultural Preservation Program	3–71	4–71
1501	Eddy, Jr., Daniel	Colorado River Indian Tribes	3–496	4–769
1502	Mitchell, William and Leslie	Individual	3–71	4–71
1503	Juan-Sanders, Vivian	Inter Tribal Council of Arizona	3–498	4–770
1504	Wolfe, John	Individual	3–71	4–71
1505	Beeman, Daniel	Individual	3–72	4–78
1506	Costa, Eileen	Individual	3–71	4–71
1507	Landis-Hanna, Amanda	Individual	3–73	4–81
1508	Harlib, Amy	Individual	3–73	4–81
1509	Townshend, Arianne	Individual	3–73	4–81
1510	Beckner, Azel	Individual	3–73	4–81
1511	Jenkins, Basil	Individual	3–73	4–81
1512	MacKer, Bonnie	Individual	3–73	4–81
1513	Stanersen, Brad	Individual	3–73	4–81
1514	Rex, Carrie	Individual	3–73	4–81
1515	Muhs, Casey	Individual	3–73	4–81
1516	Sampson, Christie	Individual	3–73	4–81
1517	Maron, Country	Individual	3–73	4–81
1518	Daughterty, Crystal	Individual	3–73	4–81
1519	Bonk, Dale	Individual	3–73	4–81
1520	Lord, Danyel	Individual	3–73	4–81
1521	Dunkleberger, David	Individual	3–73	4–81
1522	Szymanski, Debbie	Individual	3–73	4–81
1523	Reynolds, Debra	Individual	3–73	4–81
1524	Costa, Demelza	Individual	3–73	4–81
1525	Kroth, Denise	Individual	3–73	4–81
1526	Radcliffe, Donald	Individual	3–73	4–81
1527	Dunn, Eddy	Individual	3–73	4–81
1528	Cubero, Edward	Individual	3–73	4–81
1529	Royer, Erica	Individual	3–73	4–81
1530	De La Ossa, Farid	Individual	3–73	4–81
1531	Sanders, Gary	Individual	3–73	4–81
1532	Sullivan, Gayle	Individual	3–73	4–81
1533	Nash, Gloria	Individual	3–73	4–81
1534	Rhodes, Harriet	Individual	3–73	4–81
1535	Steffens, Howard	Individual	3–73	4–81
1536	Jorgensen, James	Individual	3–73	4–81
1537	Blackiston, Janeanne	Individual	3–73	4–81
1538	Foss, Janice	Individual	3–73	4–81

Table 3−1. Index of Comment Documents by Document ID Number (continued)

Document ID Number	Name	Agency/Organization	Chapter 3 Page	Chapter 4 Page
1539	Walden, Jeanette	Individual	3–73	4–81
1540	Andrews, Jenna	Individual	3–73	4–81
1541	Derzon, Jim	Individual	3–73	4–81
1542	Miller, John Davidson	Individual	3–73	4–81
1543	Mock, John	Individual	3–73	4–81
1544	Manto, Jonathan	Individual	3–73	4–81
1545	Edwards, Judi	Individual	3–73	4–81
1546	Vincent, Judy	Individual	3–73	4–81
1547	Wixon, Karen	Individual	3–73	4–81
1548	Ravenstein, Kate	Individual	3–73	4–81
1549	Rode, Katharine	Individual	3–73	4–81
1550	Gardner, Katherine	Individual	3–73	4–81
1551	Steele, Kathleen	Individual	3–73	4–81
1552	Herren, Ken	Individual	3–73	4–81
1553	Powanda, Kim	Individual	3–73	4–81
1554	Hanson, Kristin	Individual	3–73	4–81
1555	Aviles, Lauren & Olivia	Individual	3–73	4–81
1556	Raddish, Leah	Individual	3–73	4–81
1557	Marshall, Lisa	Individual	3–73	4–81
1558	Jenvey, Lottie	Individual	3–73	4–81
1559	Blue, Malcolm	Individual	3–73	4–81
1560	Layden, Marcella	Individual	3–73	4–81
1561	Babcock, Maria	Individual	3–73	4–81
1562	Corriere, Marianne	Individual	3–73	4–81
1563	Feldman, Mark	Individual	3–73	4–81
1564	Maddox, Melvyn	Individual	3–73	4–81
1565	Loscaizo-Stumpf, Merry	Individual	3–73	4–81
1566	Chase, Michael	Individual	3–73	4–81
1567	MacDougall, Mike	Individual	3–73	4–81
1568	Allen, Monique	Individual	3–73	4–81
1569	Fanos, Nancy	Individual	3–73	4–81
1570	Spears, Nancy	Individual	3–73	4–81
1571	Oggiono, Nanette	Individual	3–73	4–81
1572	Masek, Norma	Individual	3–73	4–81
1573	Brawn, Pam	Individual	3–73	4–81
1574	Martinsen, Paula	Individual	3–73	4–81
1575	Joannidis, Peter	Individual	3–73	4–81
1576	C'De Baca, Phillip	Individual	3–73	4–81
1577	Pooni, Ranjit	Individual	3–73	4–81
1578	Long, Rebecca	Individual	3–73	4–81
1579	Wilkinson, Richard	Individual	3–73	4–81
1580	Blackiston, Robert	Individual	3–73	4–81
1581	Loucks, Robert	Individual	3–73	4–81
1582	Schultz, Robert	Individual	3–73	4–81
1583	Press, Roland	Individual	3–73	4–81
1584	Avila, Ron	Individual	3–73	4–81
1585	Weisz, Russell	Individual	3–73	4–81
1586	Schwartz, Sally	Individual	3–73	4–81
1587	Monterroso, Sara	Individual	3–73	4–81
1588	Wozniak, Shawn	Individual	3–73	4–81
1589	Feyne, Stephanie	Individual	3–73	4–81

Table 3−1. Index of Comment Documents by Document ID Number (continued)

Document ID Number	Name	Agency/Organization	Chapter 3 Page	Chapter 4 Page
1590	Glazer, Steve	Individual	3–73	4–81
1591	McClain, Trent	Individual	3–73	4–81
1592	Boyd, Veronika	Individual	3–73	4–81
1593	Whitacre, Vickie	Individual	3–73	4–81
1594	Bonsignore, Victoria	Individual	3–73	4–81
1595	Hatch, Orrin	Deleted−Duplicate of Document #119		
1596	Bennett, Robert F.	Deleted−Duplicate of Document #119		
1597	Cannon, Chris	Deleted−Duplicate of Document #119		
1598	Matheson, Jim	Deleted−Duplicate of Document #119		
1599	Bishop, Rob	Deleted−Duplicate of Document #119		
1600	Rich, Diane	Individual	3–71	4–71
1601	Williams, David	Deleted-Not an EIS comment		

[a]Signatories: Orrin G. Hatch, U.S. Senator
Robert F. Bennett, U.S. Senator
Chris Cannon, U.S. Representative
Jim Matheson, U.S. Representative
Rob Bishop, U.S. Representative

[b]Signatories: Jim Matheson, U.S. Representative
Chris Cannon, U.S. Representative
Grace Napolitano, U.S. Representative
David Dreier, U.S. Representative
Lucille Roybal-Allard, U.S. Representative
Bob Filner, U.S. Representative
Shelley Berkley, U.S. Representative
J.D. Hayworth, U.S. Representative
Dennis Cardoza, U.S. Representative
Susan Davis, U.S. Representative
Mark Udall, U.S. Representative
Henry Waxman, U.S. Representative
Juanita Millender-McDonald, U.S. Representative
Rick Renzi, U.S. Representative
George Miller, U.S. Representative
Rob Bishop, U.S. Representative
Joe Baca, U.S. Representative
Linda Sanchez, U.S. Representative
Raul Grijalva, U.S. Representative
Jeff Flake, U.S. Representative
Hilda Solis, U.S. Representative

Table 3–2. Index of Comment Documents by Document Author

Document ID Number	Name	Agency/Organization	Chapter 3 Page	Chapter 4 Page
253	A Concerned Reader	Individual	3–71	4–71
161	Aarestad, Kevin	Individual	3–71	4–71
247	Abbott, Susan	Individual	3–71	4–71
202	Acerro, Theresa	Individual	3–71	4–71
1025	Ackerman, Beverly	Individual	3–72	4–79
842	Ackerman, Frank A.	Individual	3–72	4–79
1183	Adams, Lani J.	Individual	3–72	4–79
470	Adams, Muriel	Individual	3–71	4–71
866	Adkins, Elizabeth	Individual	3–72	4–79
1220	Aguado, Barbara	Individual	3–72	4–79
825	Aguilar, Felix	Individual	3–72	4–79
924	Aguirre, Patricia	Individual	3–72	4–79
212	Alaris	Individual	3–71	4–71
810	Albright, Evan	Individual	3–72	4–79
1372	Alexander, Bob	Individual	3–71	4–71
246	Alexander, James P. and Pamela G.	Individual	3–71	4–71
650	Allen, Aimee	Individual	3–71	4–71
40	Allen, Duncan	Individual	3–72	4–78
1568	Allen, Monique	Individual	3–73	4–81
709	Alsup, Adel	Individual	3–71	4–71
406	Alton, Diane	Individual	3–71	4–71
438	Ambrose, Laura, Jeff, Brett, and Cole	Individual	3–71	4–71
296	Ampe, Tim	Individual	3–71	4–71
961	Anderson, Clifford	Individual	3–72	4–79
1232	Anderson, Corina	Individual	3–72	4–79
778	Anderson, Ellen	Individual	3–72	4–79
320	Anderson, Jane	Individual	3–71	4–71
1036	Anderson, Jeffry	Individual	3–72	4–79
858	Anderson, Russ	Individual	3–72	4–79
611	Anderson, Wayne	Individual	3–71	4–71
1540	Andrews, Jenna	Individual	3–73	4–81
407	Andykaz	Individual	3–71	4–71
912	Anelli, Darla	Individual	3–72	4–79
71	Angel, Bradley	Green Action for Health and Environmental Justice	3–125	4–184
99	Angel, Bradley	Green Action for Health and Environmental Justice	3–153	4–247
534	Angel, Bradley	Greenaction for Health & Environmental Justice	3–71	4–71
547	Angel, Bradley	Green Action	3–260	4–400
274	Angelico, Dean and Phyllis	Individual	3–71	4–71
310	Anonymous 1	Individual	3–72	4–78
478	Anonymous 1 Feb 16	Individual	3–71	4–71
316	Anonymous 2	Individual	3–71	4–71
339	Anonymous 3	Individual	3–71	4–71
342	Anonymous 4	Individual	3–71	4–71
708	Anonymous 5	Individual	3–72	4–78
713	Anonymous 6	Individual	3–71	4–71
715	Anonymous 7	Individual	3–71	4–71

Table 3−2. Index of Comment Documents by Document Author (continued)

Document ID Number	Name	Agency/Organization	Chapter 3 Page	Chapter 4 Page
716	Anonymous 8	Individual	3–71	4–71
717	Anonymous 9	Individual	3–71	4–71
477	Anonymous Feb 16	Individual	3–71	4–71
447	Anonymous San Diego	Individual	3–72	4–78
500	Anthony, Linda R.	Individual	3–71	4–71
848	Apkarian, Jennifer	Individual	3–72	4–79
174	Applen, Kathleen	Individual	3–71	4–71
1353	Arikat, Amin	Individual	3–72	4–79
764	Armour, Peggy	Individual	3–72	4–79
565	Arnold, Chris	Individual	3–71	4–71
74	Atcitty, Elaine	White Mesa Ute Indian Tribe	3–129	4–195
640	Atkins, Dr. Sue	Point Loma Nazarene University	3–71	4–71
183	August, Gary	Individual	3–71	4–71
737	Austin, Janina	Individual	3–71	4–71
1584	Avila, Ron	Individual	3–73	4–81
1555	Aviles, Lauren & Olivia	Individual	3–73	4–81
577	Babbitt, James	Individual	3–71	4–71
580	Babcock, Arlinda & Jeffrey	Individual	3–71	4–71
1561	Babcock, Maria	Individual	3–73	4–81
69	Badback, Yolanda	Individual	3–122	4–177
48	Bailey, Carrie	Individual	3–71	4–71
865	Bailey, Ellen	Individual	3–72	4–79
1434	Bailey, Janeen and Wyane	Individual	3–71	4–71
685	Bain, Frank	Individual	3–71	4–71
1159	Bajwa, Raghbir	Individual	3–72	4–79
854	Baker, Connie	Individual	3–72	4–79
43	Baker, Pamela W.	Individual	3–86	4–97
59	Baker, Quentin	Individual	3–71	4–71
1455	Baker, Tanya	Individual	3–72	4–79
1436	Baldwin, Rob	Individual	3–72	4–78
315	Balistrary, Frank	Individual	3–71	4–71
186	Banks, Tanya	Individual	3–71	4–71
400	Bannister, Daryl	Individual	3–71	4–71
974	Banoczy, Jennifer	Individual	3–72	4–79
194	Barad, Dean	Individual	3–71	4–71
331	Barca, Ron	Individual	3–71	4–71
1354	Barile, Dominic	Individual	3–72	4–79
1085	Barker, Helen	Individual	3–72	4–79
625	Barker, James	Individual	3–71	4–71
359	Barker, John H.	Individual	3–71	4–71
746	Barker, M. J.	Individual	3–71	4–71
230	Barnard, Janet A.	Individual	3–71	4–71
790	Barnard, Michele L.	Individual	3–72	4–79
1141	Barnes, Joel	Individual	3–72	4–79
147	Barnett, Tim	Individual	3–71	4–71
424	Barton, John and Mildred	Individual	3–71	4–71
1214	Basnar, Lee	Individual	3–72	4–79
814	Bassett, Anne	Individual	3–72	4–79
145	Bassik, Ken	Individual	3–71	4–71
595	Bates, Hedda	Individual	3–71	4–71
30	Bates, Tony	Individual	3–72	4–78

Table 3−2. Index of Comment Documents by Document Author (continued)

Document ID Number	Name	Agency/Organization	Chapter 3 Page	Chapter 4 Page
771	Bauchau, Clara	Individual	3–72	4–79
773	Bauchau, Enduit	Individual	3–72	4–79
772	Bauchau, Mijanou	Individual	3–72	4–79
1217	Bauer, Gwynne	Individual	3–72	4–79
1382	Baughman, Jamie	Individual	3–73	4–81
570	Bauman, Sarah	Individual	3–71	4–71
548	Bauman, Valeria	Individual	3–71	4–71
73	Beck, Dudley	Individual	3–128	4–193
304	Beck, Mike and Gina	Individual	3–71	4–71
1510	Beckner, Azel	Individual	3–73	4–81
450	Beeman, Daniel	Individual	3–71	4–71
1505	Beeman, Daniel	Individual	3–72	4–78
518	Belcher, Barbara	Century 21 Carole Realty	3–71	4–71
585	Belkin, Alan	Individual	3–71	4–71
840	Bell, Ray	Individual	3–72	4–79
226	Beneventi, Alan	Individual	3–71	4–71
664	Bennett, Dr. Jean	Individual	3–71	4–71
736	Bennett, James	Individual	3–72	4–78
992	Bennett, Jean	Individual	3–72	4–79
11	Bennett, Jean M.	Individual	3–71	4–71
529	Bennett, Larry E.	Individual	3–71	4–71
1596	Bennett, Robert F.	Deleted−Duplicate of Document #119		
60	Benson, Ashley	John Burroughs School	3–71	4–71
1319	Benson, Richard	Individual	3–72	4–79
1467	Benson, Sheila	Individual	3–72	4–79
1268	Berglas, Silvia	Individual	3–72	4–79
1489	Bergman, Barbie	Individual	3–72	4–79
801	Berliner, Diane	Individual	3–72	4–79
1179	Berman, Irwin and Lila	Individual	3–72	4–79
1180	Berman, Lila and Irv	Individual	3–72	4–79
855	Berman, Nancy	Individual	3–72	4–79
1288	Bernacchi, Carol	Individual	3–72	4–79
1381	Bernstein, Bob	Individual	3–73	4–81
1387	Bernstein, Linda	Individual	3–73	4–81
442	Berryhill, Tamarah	Individual	3–71	4–71
966	Bertetta, Thomas	Individual	3–72	4–79
18	Bickel, Bettina	Individual	3–71	4–71
694	Bifulci, Danielle	Individual	3–71	4–71
351	Binyon, Jean	Sierra Club, Utah Chapter	3–207	4–338
402	Binyon, Michael L.	Individual	3–71	4–71
525	Bishop, Louise & Donn	Individual	3–71	4–71
1599	Bishop, Rob	Deleted−Duplicate of Document #119		
39	Black, John K.	Individual	3–71	4–71
374	Black, Steve	Individual	3–72	4–78
1537	Blackiston, Janeanne	Individual	3–73	4–81
1580	Blackiston, Robert	Individual	3–73	4–81
1243	Blackwell, Randi	Individual	3–72	4–79
753	Blair, Patricia	Individual	3–71	4–71
1132	Blalack, Russell	Individual	3–72	4–79
691	Bleakley, Caroline	Deleted-Not an EIS comment		
87	Bliss, Eleanor	Grand Canyon Trust	3–145	4–224

Table 3−2. Index of Comment Documents by Document Author (continued)

Document ID Number	Name	Agency/Organization	Chapter 3 Page	Chapter 4 Page
579	Bliss, Eleanor	Individual	3–71	4–71
19	Blue, Jenny	Individual	3–71	4–71
1559	Blue, Malcolm	Individual	3–73	4–81
388	Blume, Donald	Individual	3–71	4–71
85	Bodner, David	Individual	3–143	4–220
50	Bodner, David W.	Individual	3–71	4–71
1018	Boer, Evert	Individual	3–72	4–79
1495	Bogear, Lee A.	Individual	3–72	4–79
121	Boling, William C.	Individual	3–71	4–71
267	Boling, William C.	Deleted-Duplicate of Document #121		
1077	Bolt, Patricia	Individual	3–72	4–79
182	Bolton, Barbara	Individual	3–71	4–71
1519	Bonk, Dale	Individual	3–73	4–81
1594	Bonsignore, Victoria	Individual	3–73	4–81
1063	Bookidis, Paul	Individual	3–72	4–79
1098	Booth, Howard	Individual	3–72	4–79
1012	Bordenave, Michael	Individual	3–72	4–79
484	Bose, Norman	Individual	3–71	4–71
1370	Bostic, Wayne	Individual	3–71	4–71
918	Bousseau, M.	Individual	3–72	4–79
399	Bowden, Karen	Individual	3–71	4–71
178	Bowers, Bruce and Ruth	Individual	3–71	4–71
622	Bowles, Philip	Individual	3–71	4–71
615	Bowles, Sharon	Individual	3–71	4–71
920	Bowman, Margaret	Individual	3–72	4–79
905	Bowman, Nan Singh	Individual	3–72	4–79
32	Boyd, Dunston F.	Individual	3–72	4–78
1592	Boyd, Veronika	Individual	3–73	4–81
275	Bracey, Michael	Individual	3–71	4–71
44	Bradford, Cleal	Individual	3–72	4–77
1298	Brandon, Victoria	Individual	3–72	4–79
348	Brant, Richard H.	Individual	3–71	4–71
308	Brasow, Carl	Deleted-Not an EIS comment		
561	Braun, Joseph	Individual	3–71	4–71
1573	Brawn, Pam	Individual	3–73	4–81
1428	Bray, Emily	Individual	3–71	4–71
1163	Breiding, Joan	Individual	3–72	4–79
1379	Breiding, Joan	Individual	3–73	4–81
233	Breisch, Susan	Individual	3–71	4–71
1109	Bremner, Marlene	Individual	3–72	4–79
517	Breneman Jr., Tom	Individual	3–71	4–71
1013	Brennan, Matt	Individual	3–72	4–79
916	Bretz, William	Individual	3–72	4–79
1405	Brian, Danielle	Project on Government Oversight	3–492	4–764
978	Bright, Jeff	Individual	3–72	4–79
507	Brinn, Charlene	Individual	3–71	4–71
935	Brittenbach, Dennis	Individual	3–72	4–79
1233	Brook, Dan	Dept of Soc	3–72	4–79
995	Brost, Hety	Individual	3–72	4–79
115	Broughton, B.A.	Individual	3–72	4–78
1307	Brown, Brenda	Individual	3–72	4–79

Table 3−2. Index of Comment Documents by Document Author (continued)

Document ID Number	Name	Agency/Organization	Chapter 3 Page	Chapter 4 Page
562	Brown, Darcey	Individual	3–71	4–71
550	Brown, Frederick	Individual	3–71	4–71
141	Brown, Joel	Individual	3–71	4–71
1477	Brown, Keri	Individual	3–72	4–79
997	Brown, Kimberley	Individual	3–72	4–79
256	Brown, Lynn	Individual	3–71	4–71
1169	Brown, Myrna	Individual	3–72	4–79
229	Brown, Phyllis	Individual	3–71	4–71
915	Brown, Ronald	Individual	3–72	4–79
473	Brown, Virginia	Individual	3–71	4–71
554	Browne, Robert	Individual	3–71	4–71
1135	Brownrigg, Sarah	Individual	3–72	4–79
475	Bruckell, Cindy	Individual	3–71	4–71
806	Bruner, Scott M.	Individual	3–72	4–79
696	Bruno, Jeanne-Marie	Park Water Company	3–426	4–675
1015	Brush, Debbie	Individual	3–72	4–79
883	Bryan, D.	Individual	3–72	4–79
563	Bryant, Gary	Individual	3–71	4–71
1269	Bryant, Richard	Individual	3–72	4–79
982	Brzeczek, Amy	Individual	3–72	4–79
999	Buech, Heidi	Individual	3–72	4–79
1129	Bunch, Christopher	Individual	3–72	4–79
1386	Burbridge, Scott	Individual	3–73	4–81
1296	Burger, Bitsa	Individual	3–72	4–79
1380	Burger, Bitsa	Individual	3–73	4–81
1332	Burgett, Jessica	Individual	3–72	4–79
1215	Burian-Mohr, Eleanor	Individual	3–72	4–79
747	Burke, Mack	Individual	3–71	4–71
481	Burnett, Jake	Individual	3–71	4–71
1384	Burton, G.	Individual	3–73	4–81
224	Buser, John Paul	Individual	3–71	4–71
1497	Bushnell, Martha	Individual	3–72	4–79
1310	Buss, Jennie	Individual	3–72	4–79
890	Busse, Barbara	Individual	3–72	4–79
392	Butterfield, Jean and Michael	Individual	3–71	4–71
1448	C., J.A.	Individual	3–71	4–71
741	Cafry, John	Individual	3–71	4–71
1341	Cahill, Tom	Individual	3–72	4–79
908	Caico, Anthony	Individual	3–72	4–79
1447	Call, Russ	Individual	3–71	4–71
262	Calvano, Rita	Individual	3–71	4–71
1087	Campbell, Amy	Individual	3–72	4–79
96	Campbell, Jack	Individual	3–151	4–241
1597	Cannon, Chris	Deleted−Duplicate of Document #119		
614	Cantrell, Chase	Individual	3–71	4–71
692	Capano, Sandra and Richard	Individual	3–71	4–71
5	Cardella, Sylvia	Individual	3–71	4–71
270	Carey, Shreya	Individual	3–71	4–71
1115	Carlson, Cathleen A.	Individual	3–72	4–79
95	Carlson, Jim	Individual	3–150	4–240
597	Carlson, Jim	Individual	3–71	4–71

Table 3−2. Index of Comment Documents by Document Author (continued)

Document ID Number	Name	Agency/Organization	Chapter 3 Page	Chapter 4 Page
215	Carlson, Vanessa	Individual	3–71	4–71
560	Carlson, Virginia	Individual	3–359	4–541
1230	Carmichael, Jan	Individual	3–72	4–79
794	Carr, Donna	Individual	3–72	4–79
959	Carr, Gaile & Bob	Individual	3–72	4–79
1186	Carren, Claire	Individual	3–72	4–79
1191	Carr-Fingerle, Joelyn	Individual	3–72	4–79
263	Carter, Brady	Individual	3–71	4–71
516	Case, Patricia	Individual	3–71	4–71
139	Castillo, Debbie	Individual	3–71	4–71
1418	Castlevega	Individual	3–71	4–71
1031	Caton, Barbara	Individual	3–72	4–79
986	Cavallo, Sharon	Individual	3–72	4–79
589	Cavendish, Abbey	Individual	3–71	4–71
1576	C'De Baca, Phillip	Individual	3–73	4–81
719	Celine, Audrey	Individual	3–71	4–71
723	Celine, Sherry	Individual	3–71	4–71
1348	Cerello, Robert M	Individual	3–72	4–79
703	Chalmers, Diana	Individual	3–71	4–71
688	Chambliss, Jessie B.	Deleted-Not an EIS comment		
1020	Chan, Kai	Individual	3–72	4–79
681	Chan, Victor	Individual	3–71	4–71
1160	Chase, Lisa	Individual	3–72	4–79
1394	Chase, Maureen	Individual	3–73	4–81
1566	Chase, Michael	Individual	3–73	4–81
188	Chavarria, Al	Individual	3–71	4–71
958	Chavez, Kerry	Individual	3–72	4–79
732	Chen, Jay	Deleted-Not an EIS comment		
363	Cherry	Individual	3–71	4–71
305	Chipman, Cheryl	Individual	3–71	4–71
366	Choi, Joseph	Individual	3–72	4–78
430	Chorpenning, Patrick	Individual	3–71	4–71
58	Christie, Richard Lance	Association for the Tree of Life	3–99	4–122
1352	Cirina, Cathy	Individual	3–72	4–79
1144	Clark, Brad	Individual	3–72	4–79
117	Clark, David P.	Individual	3–71	4–71
1236	Clark, Dustin	Individual	3–72	4–79
1255	Clark, Dustin	Deleted-Duplicate of Document #1236		
812	Clark, Frances	Individual	3–72	4–79
673	Clark, Monette	Individual	3–415	4–655
818	Clark, Pamela	Individual	3–72	4–79
947	Claudio, Hereen	Individual	3–72	4–79
28	Cloud, Neil B.	Southern Ute Indian Tribe	3–78	4–87
1171	Cobb, Dean	Individual	3–72	4–79
830	Coburn, Bruce	Individual	3–72	4–79
660	Coffey, Chris	Individual	3–71	4–71
333	Cohee, Terry	Individual	3–71	4–71
725	Cohen, Connie	Individual	3–71	4–71
324	Coleman, Stacy	Individual	3–71	4–71
1249	Collins, Brian	Individual	3–72	4–79
1016	Collins, Sandra	Individual	3–72	4–79

Table 3−2. Index of Comment Documents by Document Author (continued)

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1373	Colosimo, Joe	Individual	3–72	4–78
911	Confectioner, Vira	Individual	3–72	4–79
119	Congressional Delegation of Utah[a]	U.S. Senators and Representatives	3–174	4–283
508	Conklin, Diane	Individual	3–71	4–71
242	Conklin, Sara	Individual	3–71	4–71
245	Conner, Carolyn	Individual	3–71	4–71
1325	Conroy, Thomas	Individual	3–72	4–79
250	Cooke, Sarah	Individual	3–71	4–71
910	Cooney, Erin	Individual	3–72	4–79
1389	Copeland, Lisa	Individual	3–73	4–81
722	Coram, Betty	Individual	3–71	4–71
179	Corrales, Max	Individual	3–71	4–71
1562	Corriere, Marianne	Individual	3–73	4–81
506	Corson, Katherine E.	Individual	3–71	4–71
482	Cosmeadodge, Katherine	Individual	3–71	4–71
1524	Costa, Demelza	Individual	3–73	4–81
1506	Costa, Eileen	Individual	3–71	4–71
1421	Cowie, Laura	Individual	3–71	4–71
111	Cozzens, Dave	Individual	3–166	4–274
923	Cramer, Mary Ann	Individual	3–72	4–79
628	Cranmer, Jana	Point Loma Nazarene University	3–71	4–71
1061	Crews, Amy	Individual	3–72	4–79
551	Crick, Tim & Victoria	Individual	3–71	4–71
600	Cross, Dale	Individual	3–71	4–71
494	Cross, Janice	Individual	3–71	4–71
1131	Crowell, Sam	Individual	3–72	4–79
991	Crowley, Lawrence	Individual	3–72	4–79
571	Crysdale, Bonnie	Individual	3–71	4–71
693	Csanadi, William C. and Beata M.	Individual	3–71	4–71
714	Cuba, Bernice	Individual	3–71	4–71
1528	Cubero, Edward	Individual	3–73	4–81
1224	Cuddeback, Ken	Individual	3–72	4–79
290	Cuidera, Charles	Individual	3–71	4–71
1237	Cupp, Jonathan	Individual	3–72	4–79
435	Curley, Patricia L.	Individual	3–72	4–78
789	Curnow, Connie	Individual	3–72	4–79
248	Curtis, Cheryl	Individual	3–71	4–71
522	Dahl, Teresa & Marvin	Individual	3–71	4–71
279	Dailey-White, Laurel	Individual	3–71	4–71
957	Dameron, Susan	Individual	3–72	4–79
987	Daniels, Patricia	Individual	3–72	4–79
25	Darke, John	Individual	3–74	4–83
26	Darke, John	Individual	3–75	4–84
27	Darke, John	Individual	3−77	4–86
37	Darke, John	Individual	3–84	4–94
38	Darke, John	Deleted-Duplicate of Document #37		
42	Darke, John	Individual	3–85	4–95
110	Darke, John	Individual	3–164	4–270
307	Darke, John	Individual	3–192	4–312

Table 3−2. Index of Comment Documents by Document Author (continued)

Document ID Number	Name	Agency/Organization	Chapter 3 Page	Chapter 4 Page
1430	Darke, John	Individual	3–494	4–766
1093	DaSilva, Ena	Individual	3–72	4–79
1518	Daughterty, Crystal	Individual	3–73	4–81
1368	Davenport, James H.	Colorado River Commission of Nevada	3–468	4–736
269	David	Individual	3–186	4–302
61	Davidson, Dale	Individual	3–71	4–71
1152	Davidson, Jon	Individual	3–72	4–79
564	Davis, Donna	Individual	3–71	4–71
646	Davis, Jesse	Individual	3–71	4–71
192	Davis, Paul	Individual	3–71	4–71
925	Day-Evers, Julianne	Individual	3–72	4–79
1107	de Greiff, Juan	Individual	3–72	4–79
1530	De La Ossa, Farid	Individual	3–73	4–81
828	De Morelli, David	Individual	3–72	4–79
593	Deanna	Mesa Verde Middle School	3–71	4–71
1252	DeBo/Stauffer, Melanie	Individual	3–72	4–79
1182	Declario, A.	Individual	3–72	4–79
985	Dee, Diana	Individual	3–72	4–79
1059	Delker, Jennifer	Individual	3–72	4–79
1196	Dennis, Larry	Individual	3–72	4–79
1461	Denny, Rachael	Individual	3–72	4–79
1541	Derzon, Jim	Individual	3–73	4–81
596	Desai, Kinjal	Individual	3–71	4–71
1462	Deutsch, Eileen	Individual	3–72	4–79
546	Dhsurf	Individual	3–71	4–71
1271	Dicamillo, Jessica	Individual	3–72	4–79
455	Dickerman, Karen	Individual	3–71	4–71
265	Diehl, Linda Provence	Individual	3–71	4–71
1192	Diehl, Marina	Individual	3–72	4–79
1419	Diener, Evelyn	Individual	3–71	4–71
1041	Dillon, Deb	Individual	3–72	4–79
1406	Dobyns, Mary	Individual	3–71	4–71
47	Dohrenwend, John C.	Individual	3–96	4–115
429	Dohrenwend, John C.	University of Arizona	3–219	4–360
1331	Donatoni, Matthew	Individual	3–72	4–79
1096	Doob, Jennifer	Individual	3–72	4–79
695	Doran, Liza	Individual	3–71	4–71
552	Dotson, Virgina	Individual	3–71	4–71
370	Doty, Taylor	Individual	3–71	4–71
931	Dougherty, Mona	Individual	3–72	4–79
819	Dowling, Anna	Individual	3–72	4–79
1267	Drake, Cindi	Individual	3–72	4–79
1225	Drake, Mercy	Individual	3–72	4–79
422	Dreifuss, Jeanine	Shiley Center for Orthopaedic	3–71	4–71
295	Driban, Glenn	Individual	3–71	4–71
601	Drogin, Alice	Individual	3–71	4–71
749	Drogin, Ken	Individual	3–71	4–71
252	Du, Lisa	Individual	3–72	4–78
510	DuBois, William	Individual	3–71	4–71
1177	Dudrick, Roseann	Individual	3–72	4–79
249	Duffy, Lorrain	Individual	3–71	4–71

Table 3−2. Index of Comment Documents by Document Author (continued)

Document ID Number	Name	Agency/Organization	Chapter 3 Page	Chapter 4 Page
782	Dukes, John	Individual	3–72	4–79
750	Duncan, Michael	Individual	3–71	4–71
1521	Dunkleberger, David	Individual	3–73	4–81
154	Dunn, Barbara	Individual	3–71	4–71
1229	Dunn, Eddy	Individual	3–72	4–79
1527	Dunn, Eddy	Individual	3–73	4–81
241	Dunn, Louis	Individual	3–71	4–71
946	Dunn, Sheryl	Individual	3–72	4–79
1102	DuPont, Collette	Individual	3–72	4–79
1157	Dupre, Christine	Individual	3–72	4–79
655	dwhittemore	Individual	3–72	4–78
1465	Dye, Claire	Individual	3–72	4–79
1280	Dzienius, Susan	Individual	3–72	4–79
1501	Eddy, Jr., Daniel	Colorado River Indian Tribes	3–496	4–769
998	Edmonson, Scott	Individual	3–72	4–79
594	Edwards, David & Linda	Individual	3–72	4–78
1545	Edwards, Judi	Individual	3–73	4–81
569	Eininger, Sue	Individual	3–71	4–71
1414	Elliott, Rob	Arizona Raft Adventures, Inc.	3–72	4–78
1244	Ellis, David	Individual	3–72	4–79
1199	Embrey, Stephanie	Individual	3–72	4–79
476	Emerine, Connie	Individual	3–71	4–71
843	Emery, Michael	Individual	3–72	4–79
1487	Enders, Todd	Individual	3–72	4–79
979	Enevoldsen, David	Individual	3–72	4–79
774	English, Rebecca	Individual	3–72	4–79
1064	Erickson, Karen	Individual	3–72	4–79
1315	Esmond, Scott	Individual	3–72	4–79
332	Espanol, Joseph	Individual	3–71	4–71
1469	Estes, Douglas	Individual	3–72	4–79
1056	Evans, Dinda	Individual	3–72	4–79
1446	Evans, Laura	Individual	3–71	4–71
1240	Evans, Lauren	Individual	3–72	4–79
1050	Evans, Michael W.	Individual	3–72	4–79
1340	Evans, Nancy	Individual	3–72	4–79
728	Everist, David	Individual	3–71	4–71
1222	Ewing, Tracy	Individual	3–72	4–79
146	Fahey, Janice	Individual	3–71	4–71
1234	Fahlberg, Maureen	Individual	3–72	4–79
929	Faich, Ron	Individual	3–72	4–79
337	Falor, Beverly	Individual	3–71	4–71
185	Fanestil, Darrell D.	Individual	3–71	4–71
1569	Fanos, Nancy	Individual	3–73	4–81
1376	Farhana	Individual	3–71	4–71
587	Farrari, Kimberly	Individual	3–71	4–71
1460	Faulk, Janeen	Individual	3–72	4–79
1153	Fayman, Bruce	Individual	3–72	4–79
1385	Fedorchuk, Justina	Individual	3–73	4–81
1026	Feijo, Babi	Individual	3–72	4–79
1200	Fein, M D	Individual	3–72	4–79
1396	Feinstein, Dianne	U.S. Senate	3–471	4–739

Table 3−2. Index of Comment Documents by Document Author (continued)

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977	Feldman, Mark	Individual	3–72	4–79
1563	Feldman, Mark	Individual	3–73	4–81
1008	Ferguson, Tom	Individual	3–72	4–79
575	Ferrell, Jean	N. N. Jaeschke, Inc.	3–71	4–71
1359	Ferullo, Michael	Deleted-Not an EIS comment		
901	Feuer, Heather	Individual	3–72	4–79
1589	Feyne, Stephanie	Individual	3–73	4–81
1228	Fielder, Lynn	Individual	3–72	4–79
72	Fields, Sarah	Individual	3–127	4–189
79	Fields, Sarah	Sierra Club	3–135	4–205
81	Fields, Sarah	Sierra Club	3–137	4–208
103	Fields, Sarah	Sierra Club	3–157	4–256
706	Fields, Sarah M.	Glen Canyon Group	3–434	4–691
707	Fields, Sarah M.	Individual	3–466	4–733
1404	Fields, Sarah M.	Individual	3–482	4–746
254	Fink, Keith	University of San Diego	3–71	4–71
1337	Firshein, David	Individual	3–72	4–79
1123	Fischer, John	Individual	3–72	4–79
200	Fisher, Steve and Amanda	Individual	3–71	4–71
260	Fishman, Barbara	Individual	3–71	4–71
93	Fitzburgh, Mary Beth	Individual	3–149	4–235
346	Fliegel, Myron	U.S. Nuclear Regulatory Commission	3–201	4–329
469	Foletta, Lorel	Individual	3–72	4–78
996	Follingstad, Gretel	Individual	3–72	4–79
1089	Folsom, Susan	Individual	3–72	4–79
573	Fong, P.E., Leighton	Glendale Water & Power	3–374	4–569
1065	Foss, Janice	Individual	3–72	4–79
1538	Foss, Janice	Individual	3–73	4–81
718	Foster, Anthony	Individual	3–71	4–71
972	France, Catherine	Individual	3–72	4–79
969	Frank, Lee	Individual	3–72	4–79
113	Frazier, Ana Marie	Diné CARE	3–168	4–278
887	Frazier, Anne	Individual	3–72	4–79
1415	Fred	Individual	3–71	4–71
282	Frederick, Cari	Individual	3–71	4–71
731	Freed, Doris	Individual	3–71	4–71
784	Freel, Elizabeth Sloan	Individual	3–72	4–79
135	Frias, Ralph A.	Individual	3–71	4–71
1311	Fritzler, Cyndi	Individual	3–72	4–79
762	Fugit, Victoria	Individual	3–71	4–71
1480	Fuller, Michelle	Individual	3–72	4–79
1024	Futral, Joel	Individual	3–72	4–79
777	G.H., Sara	Individual	3–72	4–79
221	Gabor, Peter A.	Individual	3–71	4–71
832	Gaede, Marnie	Individual	3–72	4–79
1069	Gagomiros, Keith	Individual	3–72	4–79
382	Galassini, Dina	Individual	3–71	4–71
833	Gale, Jennifer	Individual	3–72	4–79
853	Galello, Pat	Individual	3–72	4–79
198	Gallagher, Bruce	Individual	3–71	4–71
1338	Galloway, Jeanette	Individual	3–72	4–79

Table 3−2. Index of Comment Documents by Document Author (continued)

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1420	Games, John	Individual	3–72	4–78
206	Gandenberger, Daniel	Individual	3–71	4–71
1092	Ganz, Shiela	Individual	3–72	4–79
813	Garcia, Jeffery A.	Individual	3–72	4–79
950	Gardiner, Shayna	Individual	3–72	4–79
1550	Gardner, Katherine	Individual	3–73	4–81
303	Garity, Tom	Individual	3–71	4–71
1146	Garland, Wayne	Individual	3–72	4–79
237	Garmen, Jon	Individual	3–71	4–71
845	Garrett, Katherine	Individual	3–72	4–79
1464	Garvin, Michael	Individual	3–72	4–79
637	Gates, Jamie	Individual	3–71	4–71
1263	Gauthier-Campbell, Catherine	Individual	3–72	4–79
51	Geiger, John	Individual	3–71	4–71
1336	Gerety, Sheryl Lynn	Individual	3–72	4–79
627	Giannini, James	Individual	3–71	4–71
967	Gibson, Jim	Individual	3–72	4–79
661	Giffin, Patty	Individual	3–71	4–71
1299	Gilland, James	Individual	3–72	4–79
2	Gilmour, Kenneth John	Individual	3–71	4–71
799	Glazer, Steve	Individual	3–72	4–79
1590	Glazer, Steve	Individual	3–73	4–81
592	Gleason, Bill & Donna	Individual	3–71	4–71
524	Gleason, Vern & Lois	Individual	3–71	4–71
576	Goddard, Monica	Individual	3–71	4–71
663	Goddard, Terry	Office of the Attorney General	3–412	4–650
599	Goegel, Moira	Individual	3–71	4–71
882	Goggins, Alan	Individual	3–72	4–79
1297	Goitein, Ernest	Individual	3–72	4–79
656	Goldman, Richard	Individual	3–71	4–71
588	Goldstein, Candace	Individual	3–71	4–71
849	Goldstein, Judith	Individual	3–72	4–79
318	Gomez, David	Individual	3–72	4–78
988	Gonzalez, Autumn	Individual	3–72	4–79
1362	Gonzalez, Michael BA, BS, MBA, JD	UC San Diego	3–71	4–71
1407	Goodlove, Glenn	Individual	3–71	4–71
77	Goodman, Margaret	Individual	3–132	4–200
157	Gore, Douglas	Individual	3–71	4–71
1432	Gosnell, James	Individual	3–495	4–767
1454	Graham, Ariel	Individual	3–72	4–79
108	Graham, Audrey	Individual	3–163	4–267
940	Graham, Kimberley	Individual	3–72	4–79
394	Grancell, Alvin	Individual	3–72	4–78
802	Granich, Sandra	Individual	3–72	4–79
590	Grantham, Jerald	Individual	3–71	4–71
1488	Greene, Jack	Individual	3–72	4–79
994	Greenman, Jessea	Individual	3–72	4–79
204	Greenspan, Julie	Individual	3–71	4–71
889	Greeson, Kathryn	Individual	3–72	4–79
647	Gregg, Julie	Individual	3–71	4–71
257	Gregory, Carrie	Individual	3–71	4–71

Table 3−2. Index of Comment Documents by Document Author (continued)

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667	Gregory, Jeannie	San Diego Natural History Museum	3–71	4–71
1476	Greiner, Tony	Individual	3–72	4–79
903	Griest, Fred	Individual	3–72	4–79
769	Griffith, Dian	Individual	3–72	4–79
926	Griffithq, Dian	Individual	3–72	4–79
658	Groenewold, Jason	Healthy Environment Alliance of Utah	3–71	4–71
1463	Groome, Malcolm	Individual	3–72	4–79
312	Gross, Bonnie	Individual	3–71	4–71
1211	Grossman, Paul B	Individual	3–72	4–79
259	Groth, Heidi	Individual	3–71	4–71
1383	Gustus, Robin	Individual	3–73	4–81
97	Hackley, Pam	Individual	3–151	4–242
345	Hackley, Pam	Individual	3–196	4–316
619	Hagen, Melena	Individual	3–71	4–71
1312	Hahler, Pamela	Individual	3–72	4–79
844	Hahn, Dr. Dee	Individual	3–72	4–79
223	Haley, Luckie	Individual	3–71	4–71
894	Hall, Brook & Linda	Individual	3–72	4–79
1037	Hall, Sarah Jane	Individual	3–72	4–79
1227	Hamel, Bob	Individual	3–72	4–79
90	Hancock, Karla	Individual	3–147	4–230
1456	Hanks, Kim	Individual	3–72	4–79
1110	Hanley, Jim	Individual	3–72	4–79
152	Hansen, Laurel	Individual	3–71	4–71
1554	Hanson, Kristin	Individual	3–73	4–81
724	Hao, Chong	Individual	3–71	4–71
1508	Harlib, Amy	Individual	3–73	4–81
1500	Harper, David	Mohave Cultural Preservation Program	3–71	4–71
1277	Harper, Laura	Individual	3–72	4–79
954	Harper, Mark	Individual	3–72	4–79
1082	Harrington, Chris	Individual	3–72	4–79
379	Harrington, John	Individual	3–71	4–71
52	Harrington, Susie	Individual	3–71	4–71
907	Harris, Kelly	Individual	3–72	4–79
94	Harrison, Bruce	Individual	3–149	4–236
933	Harrod, Katherine	Individual	3–72	4–79
937	Harrour, Linda	Individual	3–72	4–79
1022	Harte, Mary Ellen	Individual	3–72	4–79
616	Hartge, Torie	Individual	3–71	4–71
556	Hartsfield, Sam	Port of Portland	3–312	4–457
1374	Hartung, Doug	Individual	3–71	4–71
687	Harvey, Sally	Individual	3–71	4–71
391	Haselfeld, Dianne	Individual	3–71	4–71
8	Hastings, Nora Lee	Individual	3–71	4–71
1595	Hatch, Orrin	Deleted−Duplicate of Document #119		
17	Haugen, Bob	Individual	3–71	4–71
1148	Havens, Craig	Individual	3–72	4–79
180	Hawk, Tim, Michal, and Pauline	Individual	3–71	4–71

Table 3−2. Index of Comment Documents by Document Author (continued)

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231	Hayes, Jenna	Individual	3–71	4–71
1239	Hayes, Sara	Individual	3–72	4–79
201	Hayutin, Joyce	Individual	3–71	4–71
49	Hazen, Gary	Individual	3–71	4–71
88	Hazen, Gary	Individual	3–146	4–228
893	Healy, Leah	Individual	3–72	4–79
65	Heart, Manuel	Ute Mountain Ute Tribe	3–116	4–163
100	Hedden, Bill	Grand Canyon Trust	3–154	4–250
353	Hedden, Bill	Deleted-Replaced by Document #555		
555	Hedden, Bill	Grand Canyon Trust	3–295	4–426
1403	Hedden, Bill	Deleted-Not an EIS comment		
1490	Heilpern, Slim	Individual	3–72	4–79
1293	Heinold, Christian	Individual	3–72	4–79
962	Heinrichsdorff, G.	Individual	3–72	4–79
1264	Heintzelman, Chris	Individual	3–72	4–79
220	Hemlock, Thomas	Individual	3–71	4–71
1356	Hempel, Marilyn	Individual	3–72	4–79
1178	Henderson, Sharrie	Individual	3–72	4–79
255	Hendricks, Bonnie	EDAW, Inc.	3–71	4–71
1416	Henry, Will	Point Loma Nazarene University	3–71	4–71
875	Henze, Christine	Individual	3–72	4–79
938	Herman, Kathy	Individual	3–72	4–79
261	Hernandez, Greg and Lorie	Individual	3–71	4–71
169	Hernandez, Julie	Individual	3–71	4–71
1552	Herren, Ken	Individual	3–73	4–81
155	Herriman, Wesley and Carol	Individual	3–71	4–71
380	Herron, Rex	Individual	3–71	4–71
319	Hess, Carlene	Individual	3–71	4–71
686	Hess, John	Individual	3–71	4–71
347	Hess, John R.	Individual	3–71	4–71
1046	Hetherington, Lance	Individual	3–72	4–79
1218	Hicks, David	Individual	3–72	4–79
292	Higgins, Catherine A.	Individual	3–71	4–71
123	Hill, Lu-Gray	Individual	3–71	4–71
238	Hill, Robert D.	Individual	3–71	4–71
175	Hilliard, Lucy Bastida	Individual	3–71	4–71
116	Hinds, Don	Individual	3–71	4–71
1425	Hobbs, Terri	Individual	3–71	4–71
1410	Hobza, Tony	Individual	3–71	4–71
670	Hodge, Gordon	Individual	3–71	4–71
808	Hoffman, Wendy	Individual	3–72	4–79
441	Holenstein, Christian	Individual	3–71	4–71
326	Holgate, Frank	Individual	3–71	4–71
973	Holland, Patrick W.	Individual	3–72	4–79
1492	Hollister, Richard	Individual	3–72	4–79
1412	Holmes, Jennifer	Individual	3–71	4–71
222	Holmes, Linda	Individual	3–71	4–71
786	Holmes, Ronald	Individual	3–72	4–79
464	Honecker, Carl	Individual	3–71	4–71
335	Honneker, Mary	Individual	3–71	4–71
652	Horak, Benjamin	Individual	3–71	4–71

Table 3−2. Index of Comment Documents by Document Author (continued)

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1314	Hotchkiss, John	Individual	3–72	4–79
745	Hotchkiss, Lita	Individual	3–72	4–78
1304	Houghton, Jack	Individual	3–72	4–79
735	Houston, Gail	Individual	3–71	4–71
1391	Howell, Jr., Ruben J.	Individual	3–73	4–81
1302	Hoxeng, Jessica	Individual	3–72	4–79
779	Hoyt, Jennifer	Individual	3–72	4–79
754	Huckaby, Marlene	Individual	3–71	4–71
311	Hudack, Linda	Individual	3–71	4–71
1097	Hudgins, William G.	Individual	3–72	4–79
1261	Hudson, Joan	Individual	3–72	4–79
530	Hughes, Billie Lois	Individual	3–71	4–71
759	Hughes, Sandy & Harold	Individual	3–71	4–71
1378	Hughes, Shannon	Individual	3–73	4–81
203	Hughes, Tom and Lois	Individual	3–71	4–71
1060	Hung, Eumy	Individual	3–72	4–79
448	Hunnington, Arthur	Individual	3–71	4–71
1369	Hunter, Duncan	Deleted-Not an EIS comment		
344	Huntsman, Jr. Jon M.	State of Utah	3–194	4-313
1411	Hurd, Thomas	Individual	3–72	4–78
360	Hurley, Mike and Barbara	Individual	3–71	4–71
280	Hurley, Tamara	Individual	3–71	4–71
1154	Huser, Verne	Individual	3–72	4–79
1221	Huupponen, Tristen	Individual	3–72	4–79
1433	Inaba, Nancy	Individual	3–71	4–71
572	Indergard, RG Lantz M.	Individual	3–369	4–565
869	Indermuehle, Timothy	Individual	3–72	4–79
91	Inskip, Eleanor	Individual	3–147	4–231
404	Inskip, Eleanor	Individual	3–71	4–71
624	Irwin, Constance	Point Loma Nazarene University	3–71	4–71
1125	Irwin, Craig	Individual	3–72	4–79
276	Irwin, Keith G.	Individual	3–71	4–71
1366	Isensee, Chris	Individual	3–72	4–79
1073	Ives, Brandon	Individual	3–72	4–79
532	Jackson, Henry & Jane	Individual	3–71	4–71
635	Jafry, Patricia	Individual	3–71	4–71
519	James, Gordon	Individual	3–72	4–78
365	James, Todd M.	Individual	3–72	4–78
874	Januzelli, David	Individual	3–72	4–79
1027	Jelinek, Alex	Individual	3–72	4–79
1161	Jempel, Marilyn	Individual	3–72	4–79
914	Jenkins, Basil	Individual	3–72	4–79
1511	Jenkins, Basil	Individual	3–73	4–81
964	Jenkins, Jon	Individual	3–72	4–79
462	Jenkins, Sharon	Individual	3–71	4–71
1111	Jenvey, Lottie	Individual	3–72	4–79
1558	Jenvey, Lottie	Individual	3–73	4–81
425	Jett, Lynne	Individual	3–71	4–71
1575	Joannidis, Peter	Individual	3–73	4–81
740	John	Individual	3–71	4–71
35	Johnson, Brenda	Deleted-Withdrawn by the U.S. Department of the Interior		

Table 3−2. Index of Comment Documents by Document Author (continued)

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822	Johnson, Emily	Individual	3–72	4–79
300	Johnson, Ferd	Individual	3–71	4–71
1038	Johnson, John	Individual	3–72	4–79
1317	Johnson, Kim	Individual	3–72	4–79
1321	Johnson, Kim	Deleted-Duplicate of Document #1317		
623	Johnston, Ashley	Individual	3–71	4–71
1136	Johnston, Bob	Individual	3–72	4–79
1095	Jones, Allan B.	Individual	3–72	4–79
23	Jones, Ed.D., Robert A.	The Empty Bell	3–71	4–71
677	Jones, Kalen	Individual	3–71	4–71
217	Jones, Laverne and R.W.	Individual	3–71	4–71
128	Jones, Patricia	Individual	3–71	4–71
1150	Jones, Penni	Individual	3–72	4–79
1536	Jorgensen, James	Individual	3–73	4–81
512	Josepho, Mary	Individual	3–71	4–71
423	Jouflas, Sandy Hughes	Individual	3–71	4–71
1450	Joyal, Lou Ann	Individual	3–72	4–79
1503	Juan-Sanders, Vivian	Inter Tribal Council of Arizona	3–498	4–770
126	Juenger, Kate	Individual	3–71	4–71
520	Julian, Christian	Individual	3–71	4–71
1442	Juskalian, Lee	Individual	3–71	4–71
1251	Kaczmarek, Periel	Individual	3–72	4–79
939	Kaehn, Max	Individual	3–72	4–79
543	Kain, Karen	Individual	3–71	4–71
433	Kain, Nancy	Individual	3–235	4–361
1055	Kaku, Agness	Individual	3–72	4–79
669	Kamala, Laura	Grand Canyon Trust	3–413	4–652
1364	Kambak, Jackie	Individual	3–72	4–78
1413	Kantola, Angela T.	Individual	3–71	4–71
414	Kanwischer, Kari	Individual	3–71	4–71
864	Kaplan, Morris	Individual	3–72	4–79
758	Karcher, Samuel	Individual	3–71	4–71
1212	Karsh, Lynn	Individual	3–72	4–79
1289	Kay, Joni	Individual	3–72	4–79
1188	Kearns, D	Individual	3–72	4–79
605	Keating, Riley	Individual	3–71	4–71
1444	Keck, Marcella L.	Individual	3–71	4–71
1155	Keefer, Nina	Individual	3–72	4–79
598	Keeler, Bruce	Red River Canoe Company	3–402	4–633
945	Keeney, Sharon	Individual	3–72	4–79
313	Keiler, Randy	Individual	3–71	4–71
338	Keliher, Pat	Individual	3–71	4–71
1043	Kelly, Alice	Individual	3–72	4–79
1335	Kemmerer, Carol	Individual	3–72	4–79
1320	Kemmerer, David	Individual	3–72	4–79
795	Kempter, Shahido	Individual	3–72	4–79
1040	Kennedy, Bill	Individual	3–72	4–79
702	Kent, Dan	Red Rocks Forest	3–71	4–71
53	Kercheu, Rob	Individual	3–71	4–71
963	Kerr, Barbara	Individual	3–72	4–79
243	Kerr, G.R.	Individual	3–71	4–71

Table 3−2. Index of Comment Documents by Document Author (continued)

Document ID Number	Name	Agency/Organization	Chapter 3 Page	Chapter 4 Page
807	Key, Lonnie	Individual	3–72	4–79
1139	Key, Lynda	Individual	3–72	4–79
1126	Khalsa, Mha Atma	Individual	3–72	4–79
1164	Khan, Nezer	Individual	3–72	4–79
436	Kiffmeyer, Donald	Individual	3–71	4–71
729	King, Deanna	Individual	3–71	4–71
1266	King, Jayne L	Individual	3–72	4–79
1058	Kirby, Rya	Individual	3–72	4–79
1496	Kirschbaum, Norton and Sara	Individual	3–72	4–79
1084	Kirschling, Karen	Individual	3–72	4–79
606	Kirtley, Dennie	Individual	3–71	4–71
1468	Kitchin, Millie	Individual	3–72	4–79
1140	Kite, Karen	Individual	3–72	4–79
1475	Kjonaas, Raechel	Individual	3–72	4–79
369	Klein, Chris	Individual	3–71	4–71
1198	Kleinert, Julie	Individual	3–72	4–79
1053	Kline, Laree	Individual	3–72	4–79
917	Klohr, Antonia	Individual	3–72	4–79
1270	Kluscor, Carmen	Individual	3–72	4–79
67	Knight, Carl	Ute Mountain Ute Tribe	3–119	4–171
66	Knight, Terry	Ute Mountain Ute Tribe	3–118	4–167
251	Knighton, Jesse and Jane	Individual	3–71	4–71
1443	Koda, Dennis	Individual	3–71	4–71
1273	Kollmeyer, Charlotte	Individual	3–72	4–79
836	Koo, Rebecca	Individual	3–72	4–79
523	Kosek, Shirley	Individual	3–71	4–71
826	Kosmicki, Teresa	Individual	3–72	4–79
13	Kranz, Roy	Individual	3–71	4–71
1525	Kroth, Denise	Individual	3–73	4–81
167	Kuhlman, David B.	Individual	3–71	4–71
862	Kurz, Robert R.	Individual	3–72	4–79
981	La Follette, Peter	Individual	3–72	4–79
1052	La Frinere, Rochelle	Individual	3–72	4–79
278	La Rosa, Frank and Evelyn	Individual	3–71	4–71
701	LaBlond, Juanita E.	Individual	3–71	4–71
208	LaFontaine, Paul M.	Individual	3–71	4–71
207	Lake, Mark	Individual	3–71	4–71
582	Lamm, Dorothy & Ken	Individual	3–71	4–71
213	Landa, Suzanne	Individual	3–183	4–297
886	Landau, D.	Individual	3–72	4–79
1190	Landin, Mireya	Individual	3–72	4–79
1470	Landis-Hanna, Amanda	Individual	3–72	4–79
1507	Landis-Hanna, Amanda	Individual	3–73	4–81
1303	Landowne, Deborah	Individual	3–72	4–79
1431	Landrum, Sheryl	Individual	3–71	4–71
1168	Langdon, Christine	Individual	3–71	4–71
148	Lanphear, Michelle	Individual	3–71	4–71
1308	Laplaca, Nancy	Individual	3–72	4–79
1029	Laporte, Ryan	Individual	3–72	4–79
1039	Lareau, Audrey	Individual	3–72	4–79
1017	Larkin, Laura	Individual	3–72	4–79

Table 3−2. Index of Comment Documents by Document Author (continued)

Document ID Number	Name	Agency/Organization	Chapter 3 Page	Chapter 4 Page
323	Larson, Pete	Individual	3–71	4–71
1291	Latham, Zach	Individual	3–72	4–79
1282	Lauder, Leona L	Individual	3–72	4–79
327	Laura, Diana	Individual	3–71	4–71
870	Lawrence, Vicki	Individual	3–72	4–79
1560	Layden, Marcella	Individual	3–73	4–81
631	Lazaro, Melissa	Individual	3–71	4–71
1361	Le, Timmy	Individual	3–71	4–71
748	Leason, Mark	Individual	3–71	4–71
583	Lebkuecher, Steve	Individual	3–71	4–71
1295	Lee, Debra	Individual	3–72	4–79
1485	Leenerts, Kathleen	Individual	3–72	4–79
467	Leer, Joanne	Individual	3–71	4–71
75	Lehi, Malcom	White Mesa Ute Administration	3–130	4–197
1377	Leichtling, Suzanne	Individual	3–73	4–81
393	Lemen, Sherry	Individual	3–72	4–78
288	Lemons, Helene E.	Individual	3–71	4–71
536	LeMontre, Sue	Individual	3–257	4–397
440	Lenards, Steve	Individual	3–72	4–78
362	Lennon, Judy	Individual	3–71	4–71
641	Leon, Susie	Individual	3–71	4–71
258	Leonard, John P.	Individual	3–72	4–78
538	Leuk, Sue	Individual	3–71	4–71
951	Levin, Robert	Individual	3–72	4–79
970	Levy, Mark	Individual	3–72	4–79
620	Lewis, Bradley	Individual	3–71	4–71
1000	Lewis, Donna	Individual	3–72	4–79
868	Lewis, Gail	Individual	3–72	4–79
483	Lewis, Lois & Laurence	Individual	3–71	4–71
586	Lewis, Sandy & Mel	Individual	3–71	4–71
389	Lewis, Stephen and Mary	Individual	3–72	4–77
378	lhart	Individual	3–215	4–353
1081	Lien, David	Individual	3–72	4–79
24	Lien, David A.	Individual	3–71	4–71
906	Liese, Suzanne	Individual	3–72	4–79
727	Lill, Dave	Individual	3–71	4–71
439	Lilskippy	Individual	3–71	4–71
227	Lindbloom, Robert	Individual	3–71	4–71
863	Lippert, Virginia	Individual	3–72	4–79
98	Lippman, Bob	Castle Valley Town Council	3–151	4–243
46	Lippman, Robert	Deleted-Duplicate of Document #136		
136	Lippman, Robert	Castle Valley Town Council	3–179	4–292
793	Lisi, Julius	Individual	3–72	4–79
474	Little, Andrea	Individual	3–71	4–71
699	Livermore, Dave and Bellagamba, Susan	The Nature Conservancy	3–427	4–677
815	Lo, Donovan	Individual	3–71	4–71
838	Loar, Carol	Individual	3–72	4–79
798	Loeff, Peter	Individual	3–72	4–79
1578	Long, Rebecca	Individual	3–73	4–81
1520	Lord, Danyel	Individual	3–73	4–81

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1565	Loscaizo-Stumpf, Merry	Individual	3–73	4–81
1581	Loucks, Robert	Individual	3–73	4–81
114	Loux, Robert	Nevada Agency for Nuclear Projects	3–171	4–281
501	Lovell, Cecila	Individual	3–71	4–71
104	Lowe, Janet	Grand County	3–158	4–258
153	Lowenberg, Herman and Grace	Individual	3–71	4–71
648	Loyko, Megan	Individual	3–71	4–71
604	Lucisano, Dominic	Mesa Verde Middle School	3–71	4–71
1365	Luckyman	Individual	3–71	4–71
165	Ludwigsndg	Individual	3–71	4–71
835	Luedecke, Alison J.	Individual	3–72	4–79
607	Lui, Samantha	Individual	3–71	4–71
881	Lyman, Anne	Individual	3–72	4–79
567	Lynch, Esq. Robert	Irrigation & Electrical Districts Association of Arizona	3–362	4–551
860	Lynn, Sheree	Individual	3–72	4–79
1284	Lyon, Jay	Individual	3–72	4–79
1350	Lyon, Kelly	Individual	3–72	4–79
143	Lyons, Holly	Individual	3–71	4–71
419	M, Ana	Individual	3–71	4–71
1272	M., Lexi	Individual	3–72	4–79
922	Maccallum, Crawford	Individual	3–72	4–79
1128	Macdonald, BC	Individual	3–72	4–79
1567	MacDougall, Mike	Individual	3–73	4–81
1512	MacKer, Bonnie	Individual	3–73	4–81
1083	Maddox, Melvyn	Individual	3–72	4–79
1564	Maddox, Melvyn	Individual	3–73	4–81
537	Maia, Maia	Individual	3–258	4–398
653	Maier, Jean	Individual	3–71	4–71
1286	Mallard, Angela	Individual	3–72	4–79
1047	Malmuth, Sonja	Individual	3–72	4–79
897	Manewal, William	Individual	3–72	4–79
1137	Manning, Alexis	Individual	3–72	4–79
780	Manto, Jonathan	Individual	3–72	4–79
1544	Manto, Jonathan	Individual	3–73	4–81
395	Manzer, Anne	Individual	3–72	4–78
1143	March, Marie	Individual	3–72	4–79
733	Marillo, Eve	Individual	3–71	4–71
984	Marine, Duke	Individual	3–72	4–79
426	Marks, Chris	Individual	3–71	4–71
1165	Markus, Mary	Individual	3–72	4–79
1517	Maron, Country	Individual	3–73	4–81
1357	Marsh, Marie	Individual	3–72	4–79
513	Marshall, Jan & Jim	Individual	3–71	4–71
1557	Marshall, Lisa	Individual	3–73	4–81
797	Marshall, Sandy	Individual	3–72	4–79
272	Marshall, Victoria	Individual	3–71	4–71
1248	Marsten, Catherine	Individual	3–72	4–79
368	Martin, Andrea	Individual	3–72	4–78
668	Martin, Andrea	Individual	3–71	4–71

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Document ID Number	Name	Agency/Organization	Chapter 3 Page	Chapter 4 Page
420	Martin, Eric	Individual	3–71	4–71
349	Martin, Lori	Individual	3–71	4–71
1574	Martinsen, Paula	Individual	3–73	4–81
1253	Marugg, Cynthia	Individual	3–72	4–79
1572	Masek, Norma	Individual	3–73	4–81
1259	Mason, Barbara	Individual	3–72	4–79
879	Masters, Athena	Individual	3–72	4–79
177	Mather, Elizabeth L.	Individual	3–71	4–71
376	Matheson, Jim	Deleted, never formally submitted to DOE as a comment		
1598	Matheson, Jim	Deleted−Duplicate of Document #119		
756	Mattewson, Phillip L.	Individual	3–71	4–71
636	May, Myrna	Individual	3–71	4–71
486	McCain, Suzanne	Individual	3–71	4–71
659	McCarn, Dan	Individual	3–71	4–71
1591	McClain, Trent	Individual	3–73	4–81
105	McCleary, Jeff	Individual	3–159	4–260
127	McCleary, Jeff and Wren	Individual	3–177	4–286
1193	McClintock, Catherine	Individual	3–72	4–79
770	McCloud, Russell	Individual	3–72	4–79
56	McDaniel, LaRue	Individual	3–72	4–77
317	McDaniel, Tim	Individual	3–71	4–71
898	McDermott, Ann	Individual	3–72	4–79
36	McDermott, Patrick	Community of Bluff	3–83	4–92
460	McDonough, Nora Jane	Individual	3–72	4–78
499	McDougal, Michele	McDougal & Associates	3–71	4–71
751	McDougal, Michele	Individual	3–71	4–71
1402	McDowell, Nora	Fort Mojave Indian Tribe	3–71	4–71
700	McEwen, Marjorie Larock	Individual	3–71	4–71
502	McGrath, Anne S.	Individual	3–71	4–71
284	McKay, Linda	Individual	3–71	4–71
960	McKuhen, Susan	Individual	3–72	4–79
458	MCL Studio	Individual	3–71	4–71
6	McLaughlin, Blair	Individual	3–71	4–71
805	McLaughlin, Laurie	Individual	3–72	4–79
1088	Mclean, Sarah	Individual	3–72	4–79
710	McLeod, Al	Individual	3–71	4–71
1167	McMillan, Erik	Individual	3–72	4–79
306	McNeely, Jerry	Grand County Council	3–187	4–303
689	McNeely, Jerry	Grand County Council	3–421	4–667
283	Mecke, James	Individual	3–71	4–71
367	Medina, Edgar	Individual	3–71	4–71
1344	Meierdierck, Jay	Individual	3–72	4–79
927	Melin, Ronnie	Individual	3–72	4–79
679	Melious, Rachele	Individual	3–71	4–71
490	Mello, Fran	Individual	3–72	4–78
1048	Melton, Michelle	Individual	3–72	4–79
557	Members of Congress[b]	Congress of the United States	3–313	4–458
645	Mentzer, Danielle	Klassen Hall	3–71	4–71
705	Mercandetti, Ann E. Smith	Individual	3–71	4–71
412	Messenger, Thomas J.	Individual	3–71	4–71
603	Metzler, Allison	Individual	3–71	4–71

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328	Mezlan, Bernice	Individual	3–71	4–71
1330	Michals, Jessica	Individual	3–72	4–79
225	Michiwiec, Sr., David F.	Individual	3–71	4–71
633	Mickle, Joanna	Individual	3–71	4–71
1213	Mierau, Gary	Individual	3–72	4–79
232	Mifflin, Robert H.	Individual	3–72	4–78
515	Millard, Charles	Individual	3–249	4–384
1542	Miller, John Davidson	Individual	3–73	4–81
1242	Miller, Lisa	Individual	3–72	4–79
1287	Miller, Nancy	Individual	3–72	4–79
872	Miller, Nathan A.	Individual	3–72	4–79
942	Miller, Paul	Individual	3–72	4–79
930	Millhollen, Candice	Individual	3–72	4–79
720	Milner, Cynthia	Individual	3–71	4–71
787	Minde, Cynthia	Individual	3–72	4–79
398	Mira, Julia	Individual	3–71	4–71
1371	Mishiwiec, Sr., David F.	Individual	3–71	4–71
1502	Mitchell, William and Leslie	Individual	3–71	4–71
416	Mnichowski, Brittany	Individual	3–71	4–71
1543	Mock, John	Individual	3–73	4–81
485	Molina, Roxanne	Individual	3–71	4–71
289	Monroe, Roby	Individual	3–71	4–71
1184	Monterroso, Sara	Individual	3–72	4–79
1587	Monterroso, Sara	Individual	3–73	4–81
578	Moody, Tom	Natural Channel Design, Inc.	3–71	4–71
432	Moore, Amanda	Individual	3–71	4–71
824	Moore, Estella	Individual	3–72	4–79
734	Moore, Evelyn	Individual	3–72	4–78
1130	Moore, Jackie	Individual	3–72	4–79
1238	Moore, Judy	Individual	3–72	4–79
776	Moore, Kristie	Individual	3–72	4–79
983	Moore, Lynne	Individual	3–72	4–79
1440	Moore, Marsha	Individual	3–71	4–71
630	Mooring, Dr. Michael	Point Loma Nazarene University	3–71	4–71
535	Moran, Mary	Individual	3–253	4–388
1001	Morander, Billy	Individual	3–72	4–79
285	Moreau, Donna	Individual	3–72	4–78
159	Moreno, Patrice	Individual	3–72	4–78
277	Morgal, Rick	Individual	3–71	4–71
130	Morgan, Doc	Individual	3–71	4–71
1399	Morgan, Edward C.	Town of Carefree	3–71	4–71
1203	Morgan, Jacob	Individual	3–72	4–79
76	Morgan, Manuel	San Juan County Commission	3–131	4–198
796	Morris, Ray	Individual	3–72	4–79
218	Morrow, Ivy	Individual	3–71	4–71
936	Morton, Jeffery	Individual	3–72	4–79
632	Moser, Alicia	Individual	3–71	4–71
355	Moskowitz, Grant	Individual	3–71	4–71
371	Moya, Jade	Individual	3–72	4–78
493	mtb35	Individual	3–71	4–71

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1515	Muhs, Casey	Individual	3–73	4–81
989	Muller, Audrey	Individual	3–72	4–79
1075	Mungle, Terri	Individual	3–72	4–79
816	Munk, David	Individual	3–72	4–79
20	Munroe, Rich	Individual	3–71	4–71
621	Murahovscaia, Nadejda	Point Loma Nazarene University	3–71	4–71
372	Murico, Donna	Individual	3–71	4–71
244	Murico, Ed	Individual	3–71	4–71
1358	Musco, Danielle	Point Loma Nazarene University	3–71	4–71
1201	Nabas, Jeff	Individual	3–72	4–79
899	Nacheff, Marni	Individual	3–72	4–79
1393	Nadelman, Fred	Individual	3–73	4–81
1533	Nash, Gloria	Individual	3–73	4–81
150	Natkin, Jr., Robert E.	Individual	3–71	4–71
1106	Navarrete, Paloma	Individual	3–72	4–79
446	Nelson, Charles	Individual	3–242	4–372
350	Nelson, Karen	Individual	3–71	4–71
162	Nelson, Mark H.	Individual	3–71	4–71
1262	Nemeth, Teresa	Individual	3–72	4–79
211	Netanya	Individual	3–71	4–71
1327	Neuhauser, Alice	Individual	3–72	4–79
1156	Newcomer, David	Individual	3–72	4–79
190	Newell, James	Individual	3–71	4–71
1207	Newton, Peter	Individual	3–72	4–79
452	Nichols, Joe	Individual	3–71	4–71
850	Nicolaisen, Jaime	Individual	3–72	4–79
821	Niel, Roma	Individual	3–72	4–79
34	Nielsen, M. Gail	Individual	3–82	4–91
558	Nielson, Dianne R.	Utah Department of Environmental Quality	3–316	4–461
1226	Noah, Ian	Individual	3–72	4–79
880	Nolte, Linda PhD,	Individual	3–72	4–79
134	Noonan, Laura	Individual	3–72	4–78
591	Nordby, Vonnie	MyDAS, Inc.	3–72	4–78
492	Nordling, Thea	Individual	3–71	4–71
156	Norris, Thomas	Individual	3–71	4–71
642	Northam, Elizabeth	Individual	3–71	4–71
1466	Norton, Asiel	Individual	3–72	4–79
364	Noyes, Jessica	Individual	3–72	4–78
456	Noyes, Kirt	Individual	3–71	4–71
665	Noyes, Kurt	Individual	3–71	4–71
581	Nyman, Michael	Individual	3–71	4–71
657	Nyman, Suiko Dam	Individual	3–71	4–71
1363	Nyman, Suiko Dam	Individual	3–71	4–71
101	Oblak, Denise	Utah Guides and Outfitters Association	3–156	4–254
264	Oblak, Denise	Utah Guides and Outfitters Association	3–184	4–299
1426	O'Connell, Colleen	Individual	3–71	4–71
1345	Oden, Beth	Individual	3–72	4–79
876	Odin, Jane	Individual	3–72	4–79

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1275	O'Donnell, Kelly	Individual	3–72	4–79
1571	Oggiono, Nanette	Individual	3–73	4–81
610	O'Grady, Jean	Individual	3–71	4–71
384	Olazabal, Addie	EDAW, Inc.	3–71	4–71
459	Olivas, Nelson	Deleted-Not an EIS comment		
980	Olson, Ruth	Individual	3–72	4–79
1071	Oravec, Lora J.	Individual	3–72	4–79
785	Orcholski, Gerald	Individual	3–72	4–79
9	Orr, Joe	Individual	3–71	4–71
471	Orr, Nancy	Individual	3–71	4–71
671	Osborne, Ken	Individual	3–71	4–71
841	O'Shea, Desmond	Individual	3–72	4–79
1091	Osman, Kristen	Individual	3–72	4–79
396	Oster, Delores A.	Individual	3–71	4–71
697	Ostler, Jim	Individual	3–71	4–71
629	Ovando-Knutson, Cynthia	Point Loma Nazarene University	3–71	4–71
1033	Overholt, Roger	Individual	3–72	4–79
1257	Overstreet, Jan	Individual	3–72	4–79
444	Owens, Stephen A.	Arizona Department of Environmental Quality	3–236	4–362
131	Padilla, Randy	Individual	3–71	4–71
639	Pagan, Beryl	Individual	3–71	4–71
170	Painter, Robert, Anne, and Alexander	Individual	3–71	4–71
768	Paley, Jan	Individual	3–72	4–79
240	Palfy, Frank and Joy	Individual	3–71	4–71
443	Palmer, Anita	Point Loma Nazarene University	3–71	4–71
928	Palmer, Mara	Individual	3–72	4–79
1417	Pamper, John	Individual	3–72	4–78
1076	Pan, Pinky Jain	Individual	3–72	4–79
281	Papayoanou, David C.	Individual	3–71	4–71
1142	Papi, Maria	Individual	3–72	4–79
1080	Parisi-Smith, Nicole	Individual	3–72	4–79
544	Park, Conor	Individual	3–71	4–71
1194	Parker, Vaughan	Individual	3–72	4–79
1486	Parkinson, Jean	Individual	3–72	4–79
1459	Pasichnyk, Richard	Individual	3–72	4–79
602	Paterson, Lisa	Individual	3–403	4–635
1216	Patrickson, Shela	Individual	3–72	4–79
356	Patten, Terese	Individual	3–71	4–71
1422	Paul, Courtney	Individual	3–71	4–71
1424	Paul, Nichole	Individual	3–71	4–71
584	Paulson, Pamela	Individual	3–71	4–71
298	Paz, Nils	Individual	3–71	4–71
498	Pearson, Candee	Individual	3–71	4–71
193	Peck, Jr., John	Individual	3–71	4–71
418	Peck, Vera	Individual	3–71	4–71
651	Pedersen, Dr. Keith	Point Loma Nazarene University	3–71	4–71
1494	Peeplez, Kelle	Individual	3–72	4–79
1254	Peer, Kevin	Individual	3–72	4–79

Table 3−2. Index of Comment Documents by Document Author (continued)

Document ID Number	Name	Agency/Organization	Chapter 3 Page	Chapter 4 Page
834	Peirce, Roger	Individual	3–72	4–79
1210	Peirce, Susan	Individual	3–72	4–79
1441	Pembersee, Gary	Individual	3–71	4–71
1305	Pena, Debbie	Individual	3–72	4–79
1100	Pennington, Heather	Individual	3–72	4–79
124	Peppin, Catherine A.	Individual	3–71	4–71
413	Peppin, Kip	Individual	3–71	4–71
1006	Perkins, Randi	Individual	3–72	4–79
852	Perry, Mary Ann Tomasko	Individual	3–72	4–79
955	Perryman, Joann	Individual	3–72	4–79
672	Peschong, Jon	Duratek Federal Services	3–414	4–654
1034	Peterson, Kimberly	Individual	3–72	4–79
638	Peterson, Tara	Individual	3–71	4–71
293	Petrig, Jason C.	Individual	3–71	4–71
314	Petrovitch, Michael	Individual	3–72	4–78
792	Petrowski, Todd	Individual	3–72	4–79
271	Pfeidough	Individual	3–71	4–71
457	Phillips, Mauricette	Individual	3–71	4–71
334	Phillips, Sally	Individual	3–71	4–71
352	Pickard, Kathy	Individual	3–71	4–71
1030	Pier, Mollie	Individual	3–72	4–79
1278	Pierce, Deborah	Individual	3–72	4–79
1023	Pierce, Roger	Individual	3–72	4–79
1326	Pierpont, Leslie	Individual	3–72	4–79
41	Pierson, Lloyd M.	Individual	3–71	4–71
654	Pilewski, Laura	Individual	3–71	4–71
976	Piloyan, Diana	Individual	3–72	4–79
1409	Pinzon, Genny	Individual	3–72	4–78
325	Piper, David	Individual	3–71	4–71
1349	Piper, Gayle	Individual	3–72	4–79
1300	Plotkin, Christine	Individual	3–72	4–79
228	Pluth, Karen	Individual	3–71	4–71
239	Pogue, Ann	Individual	3–71	4–71
62	Policaro, Don	Individual	3–71	4–71
1333	Pollard, Jason	Individual	3–72	4–79
1316	Pollock, Jeri	Individual	3–72	4–79
1577	Pooni, Ranjit	Individual	3–73	4–81
698	Pope, Carl	Sierra Club	3–71	4–71
1553	Powanda, Kim	Individual	3–73	4–81
1583	Press, Roland	Individual	3–73	4–81
1147	Price, Hedy	Individual	3–72	4–79
1375	Price, Roberta	Individual	3–72	4–78
851	Provenzano, James	Individual	3–72	4–79
176	Psichogios, Mary	Individual	3–71	4–71
172	Psichogios, Tom	Individual	3–71	4–71
545	Pucillo, Steve	Individual	3–71	4–71
1472	Quilici, Jill	Individual	3–72	4–79
827	Quinn, April	Individual	3–72	4–79
634	Rabello, Dianne	Point Loma Nazarene University	3–71	4–71
144	Rabiee, Sheryl	Individual	3–71	4–71
1526	Radcliffe, Donald	Individual	3–73	4–81

Table 3−2. Index of Comment Documents by Document Author (continued)

Document ID Number	Name	Agency/Organization	Chapter 3 Page	Chapter 4 Page
1556	Raddish, Leah	Individual	3–73	4–81
1066	Raghav, Shyla	Individual	3–72	4–79
763	Rains, Gail	Individual	3–72	4–79
1438	Rajgopal, Rohini	Individual	3–71	4–71
158	Rand, Stephen	Individual	3–71	4–71
138	Rand, Stephen and Carol	Individual	3–71	4–71
1172	Randall, Holly	Individual	3–72	4–79
1453	Ransom, G. Harry	Individual	3–72	4–79
904	Ransom, Jill	Individual	3–72	4–79
1498	Rashall, Rosa	Individual	3–72	4–79
184	Rasmussen, Glen McFadden	Individual	3–71	4–71
1548	Ravenstein, Kate	Individual	3–73	4–81
682	Rayner, Lisa	Individual	3–71	4–71
68	Redhouse, John	Diné CARE	3–121	4–176
266	Reed, Jess	Individual	3–72	4–78
528	Reed, Jess	Deleted-Not an EIS comment		
877	Reed, Lisa	Individual	3–72	4–79
755	Reed, Mary	Individual	3–71	4–71
107	Regehr, Ron	Individual	3–162	4–266
711	Regier, Alex	Individual	3–71	4–71
913	Reich, Andrew	Individual	3–72	4–79
1294	Reilly, Robert	Individual	3–72	4–79
1121	Reimers, Andy	Individual	3–72	4–79
149	Reinhard, Frank	Individual	3–71	4–71
209	Rekus, Dale	Individual	3–71	4–71
1437	Repp, David	Individual	3–71	4–71
1514	Rex, Carrie	Individual	3–73	4–81
800	Reyes, Fran	Individual	3–72	4–79
1347	Reynolds, Debra	Individual	3–72	4–79
1523	Reynolds, Debra	Individual	3–73	4–81
1534	Rhodes, Harriet	Individual	3–73	4–81
301	Rhodes, Steve	Individual	3–71	4–71
428	Rice, Tom	Deleted-Duplicate of Document #549		
1600	Rich, Diane	Individual	3–71	4–71
892	Richards, Susan	Individual	3–72	4–79
1205	Richardson, Matthew	Individual	3–72	4–79
140	Richardson, Tom	Individual	3–71	4–71
859	Riddell, John	Individual	3–72	4–79
1435	Ridder, Ross	Direct Marketing Resources, Inc.	3–71	4–71
1133	Riddle, Donna	Individual	3–72	4–79
885	Rieber, Emily	Individual	3–72	4–79
1235	Riley, Callie	Individual	3–72	4–79
1112	Riley, Deborah Cloven	Individual	3–72	4–79
1241	Riley, Raymond	Individual	3–72	4–79
219	Ringer, CE	Individual	3–71	4–71
390	Ringer, Charles E.	Individual	3–71	4–71
64	Rippy, Jeff	Deleted-Not an EIS comment		
1397	Rivera, Gloria A.	Imperial Irrigation District	3–71	4–71
539	Rivera, Madeline	Individual	3–259	4–399
1301	Roach, Kenneth	Individual	3–72	4–79
1445	Roache, Kevin	Individual	3–71	4–71

Table 3−2. Index of Comment Documents by Document Author (continued)

Document ID Number	Name	Agency/Organization	Chapter 3 Page	Chapter 4 Page
1127	Roberson, Keegan	Individual	3–72	4–79
662	Roberts, Harold	International Uranium (USA) Corporation	3–404	4–636
3	Roberts, Ricky	Northern Arizona University	3–71	4–71
574	Roberts, Robert E.	U.S. Environmental Protection Agency	3–375	4–570
15	Robins, Donna Robi	Individual	3–71	4–71
856	Robinson, Saliane	Individual	3–72	4–79
839	Robison, Anne	Individual	3–72	4–79
210	Roccoforte, Marilyn and Vito	Individual	3–71	4–71
823	Rocker, Carol	Individual	3–72	4–79
1158	Rodda, Beth	Individual	3–72	4–79
1549	Rode, Katharine	Individual	3–73	4–81
617	Rodeheaver, Vonda	Individual	3–71	4–71
1223	Roden, Tessa	Individual	3–72	4–79
386	Rodriguez, Faye	The Marika Group	3–71	4–71
1388	Rogers, Lila	Individual	3–73	4–81
10	Rogers, MD, Alan	Individual	3–71	4–71
965	Rolland, Terri	Individual	3–72	4–79
168	Romero, Julie	Individual	3–72	4–78
1151	Romero, Monika	Individual	3–72	4–79
919	Root, Charlene	Individual	3–72	4–79
133	Root, Don	Individual	3–71	4–71
1007	Rose, Pandora	Individual	3–72	4–79
463	Rosenwald, Althia	Individual	3–71	4–71
1175	Rosher, Ellen	Individual	3–72	4–79
142	Roslund, Dan	Individual	3–71	4–71
781	Ross, Aimee	Individual	3–72	4–79
4	Ross, John & Margaret	Individual	3–71	4–71
867	Ross, Marie	Individual	3–72	4–79
559	Rosson, Clay	Individual	3–357	4–537
730	Rounkles, Diane	Individual	3–72	4–78
401	Rouse, Bronwyn M.	Individual	3–72	4–78
1197	Rousselot, Patrick	Individual	3–72	4–79
1529	Royer, Erica	Individual	3–73	4–81
531	Rubacalva, Manuela	Individual	3–71	4–71
1099	Rubens, Mari	Individual	3–72	4–79
1010	Rucker, Christi	Individual	3–72	4–79
1070	Rudolph, Ana	Individual	3–72	4–79
900	Ruegg, Leona	Individual	3–72	4–79
199	Rumsey, Eric J.	Individual	3–71	4–71
1185	Russell, Dorothy	Individual	3–72	4–79
84	Russell, Steve	Individual	3–142	4–217
403	Rutledge, Barbara	Individual	3–72	4–78
1481	Ryan, Bela	Individual	3–72	4–79
1051	Rytina, Jenna	Individual	3–72	4–79
1360	Saith, Arun	Individual	3–71	4–71
1005	Sakacs, John	Individual	3–72	4–79
83	Sakrison, Dave	City of Moab, Mayor	3–140	4–213
488	Sakrison, Dave	City of Moab, Mayor	3–244	4–373
1479	Salgado, Diego	Individual	3–72	4–79
1204	Saltzman, Barry	Individual	3–72	4–79

Table 3−2. Index of Comment Documents by Document Author (continued)

Document ID Number	Name	Agency/Organization	Chapter 3 Page	Chapter 4 Page
1166	Samenfeld, Herbert	Individual	3–72	4–79
1516	Sampson, Christie	Individual	3–73	4–81
1042	Sams, James	Individual	3–72	4–79
1247	Samuels, Harold A	Individual	3–72	4–79
387	Sander, Luther and Eileen	Individual	3–71	4–71
1457	Sanders, Gary	Individual	3–72	4–79
1531	Sanders, Gary	Individual	3–73	4–81
643	Sandoval, Gerardo	Individual	3–71	4–71
1318	Sanford, Julie	Individual	3–72	4–79
1209	Sankey, Diana	Individual	3–72	4–79
1057	Santana, Kathryn	Individual	3–72	4–79
609	Santillo, Richard	Individual	3–71	4–71
234	Saporito, Gloria	Individual	3–71	4–71
187	sauerонthegreen	Individual	3–71	4–71
829	Schacht, Troy	Individual	3–72	4–79
468	Schafer, Laura	Individual	3–71	4–71
1346	Schaffer, Gabe	Individual	3–72	4–79
189	Schaps, Jack	Individual	3–71	4–71
164	Schauer, Ellen	Individual	3–71	4–71
526	Schechter, Ann & John	Individual	3–71	4–71
1122	Scherek, Roxane	Individual	3–72	4–79
511	Schettler, Robert	Individual	3–71	4–71
1342	Schilder, Mary	Individual	3–72	4–79
1458	Schlomberg, Kurt	Individual	3–72	4–79
817	Schneider, Marilyn	Individual	3–72	4–79
336	Schoeller, Ann	Individual	3–71	4–71
497	Schroeder, Rosemary	Individual	3–71	4–71
1423	Schroeder, Sandra	Individual	3–71	4–71
496	Schubert, Gabriele	Individual	3–71	4–71
1189	Schuler, Urs	Individual	3–72	4–79
1582	Schultz, Robert	Individual	3–73	4–81
122	Schulze, Jan R. Carney	Individual	3–71	4–71
1408	Schulze, Jane Carney	Individual	3–71	4–71
1586	Schwartz, Sally	Individual	3–73	4–81
956	Schweitzer, Hilde	Individual	3–72	4–79
1011	Scianna, Maria	Individual	3–72	4–79
1049	Scott, John	Individual	3–72	4–79
932	Scott, Sidney Ramsden	Individual	3–72	4–79
847	Scotti, O. Bisogno	Individual	3–72	4–79
129	Sculpt, Lia	Individual	3–72	4–78
86	Seal, Franklin	Individual	3–144	4–222
896	Sears, Michael	Individual	3–72	4–79
726	Seawell, Earnest N.	Individual	3–71	4–71
1004	Sebastian, Joseph	Individual	3–72	4–79
495	See, Steve	Individual	3–71	4–71
1044	Sefton, John	Individual	3–72	4–79
1306	Segall-Anable, Linda	Individual	3–72	4–79
1104	Seidler, Chuck	Individual	3–72	4–79
29	Sellers, Charlie R.	Individual	3–72	4–78
1195	Seltzer, Robert	Individual	3–72	4–79
649	Serrano, Indra	Finch Hall A-2	3–71	4–71

Table 3−2. Index of Comment Documents by Document Author (continued)

Document ID Number	Name	Agency/Organization	Chapter 3 Page	Chapter 4 Page
1086	Seymour, Laurie S.	Individual	3–72	4–79
408	Seymour, Richard and Barbara	Individual	3–71	4–71
837	Shanahan, Timothy	Individual	3–72	4–79
373	Shanske, Donna	Individual	3–72	4–78
744	Sharon	Individual	3–71	4–71
1003	Shaw, Michael	Individual	3–72	4–79
1187	Sheets, Kevin	Individual	3–72	4–79
1256	Shelton, Brand	Individual	3–72	4–79
1062	Sherwood, Maris	Individual	3–72	4–79
846	Shively, Kelly	Individual	3–72	4–79
949	Shockley, Mark	Individual	3–72	4–79
1471	Shockley, Mark	Deleted-Duplicate of Document #949		
434	Showalter, Patricia	Individual	3–71	4–71
163	Siglin, Larry	Individual	3–71	4–71
1028	Sigmund, Chandra	Individual	3–72	4–79
1323	Signorile, Karen	Individual	3–72	4–79
22	Silberberg-Peirce, Susan	Canyonlights Slides/Photography	3–71	4–71
608	Silva, Dennis	Individual	3–71	4–71
990	Silvers, Catherine	Individual	3–72	4–79
214	Simonton, Cathy	Individual	3–71	4–71
766	Singer, Kay	Individual	3–72	4–79
205	Sinnen, Ronald	Individual	3–71	4–71
690	Sjostedt, Susanne	Deleted-Not an EIS comment		
809	Slawson, Camly	Individual	3–72	4–79
1250	Smeal, Mindy A	Individual	3–72	4–79
721	Smith, Cynthia	Individual	3–71	4–71
1398	Smith, Darrell H.	Salt Lake County Council of Governments	3–473	4–741
1401	Smith, Edward D. "Tito"	Chemehuevi Indian Tribe	3–71	4–71
431	Smith, Hector	Individual	3–71	4–71
322	Smith, Laura	Individual	3–71	4–71
132	Smith, Loura	Individual	3–71	4–71
666	Smith, Margaret	Individual	3–71	4–71
676	Smith, Stephen	Individual	3–71	4–71
1032	Smith-Hileman, Joanne	Individual	3–72	4–79
1449	Smolin, Ron	Individual	3–71	4–71
566	Snyder, Philip	Individual	3–71	4–71
1390	Sobanski, Sandra	Individual	3–73	4–81
1491	Soderlind, Johan	Individual	3–72	4–79
1176	Soraghan, Conor	Individual	3–72	4–79
1329	Souza, Michael	Individual	3–72	4–79
287	Sowder, Judith T.	San Diego State University	3–71	4–71
803	Spallina, Jann	Individual	3–72	4–79
1570	Spears, Nancy	Individual	3–73	4–81
1339	Specht, Chris	Individual	3–72	4–79
921	Speer, Kirsten	Individual	3–72	4–79
1181	Spencer, Gayle	Individual	3–72	4–79
952	Spensley, Gail	Individual	3–72	4–79
437	Spensley, June	Individual	3–71	4–71
466	Spicer, Duane	Individual	3–71	4–71

Table 3−2. Index of Comment Documents by Document Author (continued)

Document ID Number	Name	Agency/Organization	Chapter 3 Page	Chapter 4 Page
1145	Spitz, Marlene T.	Individual	3–72	4–79
1124	Spotts, Richard	Individual	3–72	4–79
820	Springer, Paul	Individual	3–72	4–79
765	St Raynis	Individual	3–72	4–79
120	Stafford, Michael J.	Nevada Department of Administration	3–176	4–285
427	Stafford, Richard A.	Individual	3–216	4–356
1513	Stanersen, Brad	Individual	3–73	4–81
509	Stapleton, Maureen	Deleted-Not an EIS comment		
445	Stapleton, Maureen A.	San Diego County Water Authority	3–241	4–370
361	Starbuck, Willaim L.	Individual	3–71	4–71
449	Stark, Carol	Individual	3–71	4–71
454	Stark, John	Individual	3–71	4–71
1090	Starke-Livermore, Shanna	Individual	3–72	4–79
1551	Steele, Kathleen	Individual	3–73	4–81
767	Stefanow, Jennifer	Individual	3–72	4–79
1535	Steffens, Howard	Individual	3–73	4–81
294	Steinhause, Kathy	Individual	3–71	4–71
757	Stern, Rochelle	Individual	3–72	4–78
783	Stewart, Diane	Individual	3–72	4–79
742	Stewart, Katherine	Individual	3–71	4–71
902	Stewart, Richard	Individual	3–72	4–79
63	Stewart, Robert F.	Department of Interior	3–107	4–140
712	Stiff, Anna	Individual	3–71	4–71
1094	Stimmel, Rodney	Individual	3–72	4–79
674	Stoker, David	Individual	3–71	4–71
791	Stokes, Debra	Individual	3–72	4–79
109	Stolfa, Dave	Individual	3–163	4–269
678	Stolfa, Dave	Individual	3–71	4–71
357	Stolfa, Marilyn S.	Individual	3–71	4–71
1116	Stone, Jim	Individual	3–72	4–79
216	Stoneking, Link	Individual	3–71	4–71
884	Stratford, S. J.	Individual	3–72	4–79
503	Stratton, Bill and Ferne	Individual	3–71	4–71
385	Straus, Charles R.	Individual	3–71	4–71
1002	Strauss, Mark	Individual	3–72	4–79
1483	Strawn, Lori	Individual	3–72	4–79
644	Street, Stacey	Klassen Hall	3–71	4–71
309	Strell, Lia	Individual	3–71	4–71
191	Struthers, Eileen	Individual	3–71	4–71
1260	Stutz, Kathleen G	Individual	3–72	4–79
505	Suarez, Mary	Individual	3–248	4–382
504	Suarez, Michael K.	Individual	3–247	4–380
1219	Suhy, Jim	Individual	3–72	4–79
1532	Sullivan, Gayle	Individual	3–73	4–81
S-1	Summary Comment #1	n/a	3–71	4–71
S-2	Summary Comment #2	n/a	3–72	4–77
S-3	Summary Comment #3	n/a	3–72	4–78
S-4	Summary Comment #4	n/a	3–72	4–78
S-5	Summary Comment #5	n/a	3–72	4–79
S-6	Summary Comment #6	n/a	3–73	4–81

Table 3−2. Index of Comment Documents by Document Author (continued)

Document ID Number	Name	Agency/Organization	Chapter 3 Page	Chapter 4 Page
760	Suplee, Serena	Individual	3–71	4–71
1429	Sussman, Deb	Individual	3–71	4–71
968	Sutphin, Madelaine	Individual	3–72	4–79
1021	Swan, Rebecca	Individual	3–72	4–79
33	Swasey, G.R. and Verla	Individual	3–81	4–90
340	Sweig, Jeanne	Individual	3–71	4–71
354	Swisshelm, Richard	Individual	3–71	4–71
1522	Szymanski, Debbie	Individual	3–73	4–81
1072	Tabib, Michael	Individual	3–72	4–79
286	Taggert, Marilyn	Individual	3–72	4–78
273	Tall, Rebecca	Individual	3–72	4–78
1482	Tamminen, Lenn	Individual	3–72	4–79
82	Tanner, Rex	Grand County Council	3–139	4–210
118	Taparauskas, Irene	Individual	3–71	4–71
54	Tate, LaVerne	Individual	3–72	4–77
738	Taylor, Joanne A.	Individual	3–71	4–71
1473	Taylor, Linda Lee	Individual	3–72	4–79
971	Taylor, Robert	Individual	3–72	4–79
1324	Taylor, Steven	Individual	3–72	4–79
704	Terebey, Nicholas	Individual	3–71	4–71
1019	Terhune, Jennifer	Individual	3–72	4–79
235	Thibault, Laura	Individual	3–71	4–71
1351	Thing, Susan	Individual	3–72	4–79
1334	Thomas, Kevin	Individual	3–72	4–79
1134	Thomas, Kim	Individual	3–72	4–79
1138	Thomas, Lori	Individual	3–72	4–79
417	Thompson, David	San Diego Community College District	3–71	4–71
409	Thompson, David A.	Kearny High Educational Center	3–71	4–71
415	Thompson, Eleanor	Individual	3–71	4–71
421	Thompson, Mr.	Kearny High School	3–71	4–71
1367	Thompson, Mr.	Deleted-Duplicate of Document #421		
12	Thompson, Robert R.	Individual	3–71	4–71
804	Thompson, Stephen	Individual	3–72	4–79
106	Thuesen, Jim	Individual	3–161	4–263
527	Tielens, Arthur J.	A.J. Tielens and Associates	3–250	4–386
675	Ting, Jantrue	Individual	3–71	4–71
330	Tiontek, Tana	Individual	3–71	4–71
491	Tiwald, William	Individual	3–71	4–71
321	Tobario, Steve	Individual	3–71	4–71
1009	Tom, Janette	Individual	3–72	4–79
993	Tonsberg, B.	Individual	3–72	4–79
137	Town of Castle Valley	Castle Valley	3–181	4–295
343	Townsend, Roger	Individual	3–71	4–71
1509	Townshend, Arianne	Individual	3–73	4–81
944	Tracey, Kayta	Individual	3–72	4–79
542	Tran, Thuy	Individual	3–71	4–71
540	Trenholme, Howard	Individual	3–71	4–71
1054	Trimble, Robert C.	Individual	3–72	4–79
1208	Triplett, Tia	Individual	3–72	4–79
197	Trogden, Stephanie	Individual	3–71	4–71

Table 3−2. Index of Comment Documents by Document Author (continued)

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21	Truax, Wayne	Individual	3–71	4–71
1231	Trujillo, Rebecca	Individual	3–72	4–79
1120	Tuckman, Roy	Individual	3–72	4–79
1355	Turek, Gabriella	Individual	3–72	4–79
14	Turkot, Patricia and Frank	Individual	3–71	4–71
1108	Tutihasi, R-Laurraine	Individual	3–72	4–79
1328	Tyler, Steve	Individual	3–72	4–79
683	Underhill, Janice	Individual	3–71	4–71
553	Underwood, Dennis	Metropolitan Water District of Southern California	3–272	4–411
1101	Urani, Thomas B.	Individual	3–72	4–79
941	V, Sakura	Individual	3–72	4–79
480	Vairo, Inge	Individual	3–71	4–71
1276	Valenzuela, Andrea	Individual	3–72	4–79
196	valindp	Individual	3–72	4–78
975	Van Zee, Drew	Individual	3–72	4–79
612	VanderZanden, Karla	Canyonlands Field Institute	3–71	4–71
1174	Vangi-Stern, Eva	Individual	3–72	4–79
92	Vaughn, Rita	Individual	3–148	4–234
405	Vega III, Vladimir	Individual	3–72	4–78
1173	Verry, James	Individual	3–72	4–79
1322	Vertrees, Gerald	Individual	3–72	4–79
397	Vestal, Rita	Individual	3–71	4–71
1078	Viglia, Peter	Individual	3–72	4–79
775	Villavicencio, Alan	Individual	3–72	4–79
1546	Vincent, Judy	Individual	3–73	4–81
195	von Eichhorn, John H.	Individual	3–71	4–71
125	von Koch, Mary	Individual	3–71	4–71
1451	Voss, Barbara	Individual	3–72	4–79
1439	Waclawik, Matthew	Individual	3–71	4–71
1103	Wagner, G. Blu	Individual	3–72	4–79
7	Wagner, Joanne L.	Individual	3–71	4–71
291	Wagner, Steve	Individual	3–71	4–71
472	Wagner, Steve	Individual	3–71	4–71
811	Wagoner, Robyn	Individual	3–72	4–79
1246	Wahose, Mare	Individual	3–72	4–79
102	Wait, Jeannine	Individual	3–157	4–255
1539	Walden, Jeanette	Individual	3–73	4–81
943	Waldref, Lois	Individual	3–72	4–79
31	Walker, Olene S.	State of Utah	3–79	4–88
861	Wallace, Sondra	Individual	3–72	4–79
1258	Wallner, Mary Ann	Individual	3–72	4–79
377	Walsh, Justin	Individual	3–71	4–71
831	Walworth, David	Individual	3–72	4–79
1452	Waring, Dawn	Individual	3–72	4–79
1274	Warne, Pete	Individual	3–72	4–79
166	Warner, Rob	Individual	3–71	4–71
909	Warren, Betsie	Individual	3–72	4–79
1	Wates, Don	Individual	3–72	4–77
891	Watkins, Billie	Individual	3–72	4–79
618	Watkins, Cameron	Individual	3–71	4–71
479	Wayne, Erica	Individual	3–71	4–71

Table 3−2. Index of Comment Documents by Document Author (continued)

Document ID Number	Name	Agency/Organization	Chapter 3 Page	Chapter 4 Page
1162	Wayne, Jerry	Individual	3–72	4–79
299	Wayne, Vincent and Deborah	Individual	3–71	4–71
57	Webb, Chris	City of Blanding, City Manager	3–98	4–119
112	Webb, Chris	City of Blanding, City Manager	3–167	4–275
1309	Webber, Rita	Individual	3–72	4–79
684	Weber, Ivan	Weber Sustainability Consulting	3–417	4–659
1079	Weber, Majill-Lee	Individual	3–72	4–79
411	Weiler, Geoffrey and Elizabeth	Individual	3–71	4–71
1045	Weimer, Margaret	Individual	3–72	4–79
171	Weinbaum, Ben	Individual	3–71	4–71
871	Weiner, Maury	Individual	3–72	4–79
857	Weinhold, Robert	Individual	3–72	4–79
236	Weir, Barbara G. Campbell	Individual	3–71	4–71
78	Weisheit, John	Living Rivers	3–134	4–202
80	Weisheit, John	Living Rivers	3–136	4–207
89	Weisheit, John	Living Rivers	3–146	4–229
568	Weisheit, John	Living Rivers and Colorado Riverkeeper	3–364	4–553
1202	Weisz, Russel	Individual	3–72	4–79
1585	Weisz, Russell	Individual	3–73	4–81
410	Welch, Dana Franklin	Individual	3–71	4–71
895	Weller, Ross	Individual	3–72	4–79
1395	Wells, Kimball	Individual	3–73	4–81
878	Wenner, M. W.	Individual	3–72	4–79
888	Werner, Kirstyn	Individual	3–72	4–79
297	Weston, Steve C.	Padre Dam Municipal Water District	3–71	4–71
1206	Weymouth, Douglass	Individual	3–72	4–79
45	Whiskers, Thelma	White Mesa Concerned Community	3–87	4–100
70	Whiskers, Thelma	Individual	3–123	4–178
1593	Whitacre, Vickie	Individual	3–73	4–81
1283	Whitcomb, Matthew S	Individual	3–72	4–79
1292	Whitcomb, Paulette	Individual	3–72	4–79
1493	White, Sharlene	Individual	3–72	4–79
549	Whiteskunk, Selwyn	Ute Mountain Ute Tribe	3–261	4–401
151	Whitley, Joan	Individual	3–71	4–71
1068	Whitnah, Claudia	Individual	3–72	4–79
1474	Wiget Ii, Francis X.	Individual	3–72	4–79
1285	Wilber, Douglas	Individual	3–72	4–79
160	Wilcox, Stephanie	Individual	3–71	4–71
181	Wildenthal, Bryan H.	Individual	3–71	4–71
375	Wilk, James	Individual	3–71	4–71
1579	Wilkinson, Richard	Individual	3–73	4–81
1035	Williams, Bob	Individual	3–72	4–79
1014	Williams, Charles	Individual	3–72	4–79
489	Williams, Christy	KZMU	3–71	4–71
1601	Williams, David	Deleted-Not an EIS comment		

Table 3−2. Index of Comment Documents by Document Author (continued)

Document ID Number	Name	Agency/Organization	Chapter 3 Page	Chapter 4 Page
1499	Williams, Jane	California Communities Against Toxics	3–71	4–71
1281	Williams, Janet	Individual	3–72	4–79
521	Williams, Patty Ann	Individual	3–71	4–71
1113	Williams, Seanna	Individual	3–72	4–79
788	Williams, Susan	Individual	3–72	4–79
173	Willis, Larry	Individual	3–71	4–71
451	Wilson, Jennifer	Individual	3–71	4–71
302	Wilson, Lisa	Individual	3–71	4–71
381	Wilson, Susan	Individual	3–71	4–71
514	Wiltse, David	Individual	3–71	4–71
329	Winston, Richard	Individual	3–71	4–71
1067	Winterer, Ted	Individual	3–72	4–79
934	Wiser, Steven J.	Individual	3–72	4–79
1547	Wixon, Karen	Individual	3–73	4–81
1265	Wohl, Ellen	Department of Earth Resources Colorado State University	3–72	4–79
16	Wolf, Barry	Individual	3–71	4–71
1119	Wolf, Rachel	Individual	3–72	4–79
1504	Wolfe, John	Individual	3–71	4–71
1114	Wolters, Mel	Individual	3–72	4–79
1343	Womble, Jeffrey	Individual	3–72	4–79
1427	Wong, Lauren	Individual	3–71	4–71
1170	Wong, Teresa	Individual	3–72	4–79
1245	Woo, Howard	Individual	3–72	4–79
743	Woodard, Joan	Individual	3–71	4–71
761	Woodard, Patty	Individual	3–72	4–78
1117	Woodcock, Angela	Individual	3–72	4–79
1118	Woodcock, Angela	Deleted-Duplicate of Document #1117		
533	Woodfin, Debbie	Individual	3–71	4–71
383	Wooldridge, Forrest	Individual	3–72	4–78
465	Wooley, Carol	Individual	3–71	4–71
1588	Wozniak, Shawn	Individual	3–73	4–81
341	Wright, Jane	Individual	3–72	4–78
626	Wu, John	Individual	3–71	4–71
752	Wurth, Michelle	Individual	3–71	4–71
358	Wyandt, Paul	Individual	3–71	4–71
487	Wynn, Tina	Individual	3–71	4–71
541	Yancey, William B.	Individual	3–71	4–71
268	Yang, James	Individual	3–71	4–71
55	Yazzie, Mary Jane	Individual	3–72	4–77
739	Yonker, Joanne	Individual	3–71	4–71
1149	York, Carole	Individual	3–72	4–79
948	Young, Chad	Individual	3–72	4–79
1313	Young, Jennifer	Individual	3–72	4–79
1279	Young, Mary	Individual	3–72	4–79
461	Young, Ruby	Individual	3–71	4–71
953	Youngson, Patricia	Individual	3–72	4–79
453	Yuskin, Joe	Individual	3–71	4–71
613	Z, Ariana	Mesa Verde Middle School	3–71	4–71
1074	Zahller, Guy	Individual	3–72	4–79

Table 3−2. Index of Comment Documents by Document Author (continued)

Document ID Number	Name	Agency/Organization	Chapter 3 Page	Chapter 4 Page
1478	Zamora, Delilah	Individual	3–72	4–79
680	Zapotocky, David	Individual	3–71	4–71
1105	Zarchin, Paul	Individual	3–72	4–79
873	Zeissler, Chandra	Individual	3–72	4–79
1484	Zeldas, Sandy	Individual	3–72	4–79
1400	Zimmerman, Gerald R.	Colorado River Board of California	3–478	4–742
1392	Zlevor, JoAnne	Individual	3–73	4–81
1290	Zoline, Abigail	Individual	3–72	4–79

[a]Signatories: Orrin G. Hatch, U.S. Senator
Robert F. Bennett, U.S. Senator
Chris Cannon, U.S. Representative
Jim Matheson, U.S. Representative
Rob Bishop, U.S. Representative

[b]Signatories: Jim Matheson, U.S. Representative
Chris Cannon, U.S. Representative
Grace Napolitano, U.S. Representative
David Dreier, U.S. Representative
Lucille Roybal-Allard, U.S. Representative
Bob Filner, U.S. Representative
Shelley Berkley, U.S. Representative
J.D. Hayworth, U.S. Representative
Dennis Cardoza, U.S. Representative
Susan Davis, U.S. Representative
Mark Udall, U.S. Representative
Henry Waxman, U.S. Representative
Juanita Millender-McDonald, U.S. Representative
Rick Renzi, U.S. Representative
George Miller, U.S. Representative
Rob Bishop, U.S. Representative
Joe Baca, U.S. Representative
Linda Sanchez, U.S. Representative
Raul Grijalva, U.S. Representative
Jeff Flake, U.S. Representative
Hilda Solis, U.S. Representative

Table 3–3. Index of Comment Documents by Cooperating Agency

Agency/Organization[a]	Document ID Number	Chapter 3 Page	Chapter 4 Page
City of Blanding	57	3–98	4−119
Community of Bluff	36	3–83	4−92
Department of Interior[b]	63	3–107	4−140
Grand County Council	306	3–187	4−303
	689	3–421	4−667
U.S. Environmental Protection Agency	574	3–375	4−570
U.S. Nuclear Regulatory Commission	346	3–201	4−329
Utah Department of Environmental Quality	558	3–316	4−461
Ute Mountain Ute Tribe	549	3–261	4−401

[a]San Juan County and the U.S. Army Corps of Engineers did not submit comments.
[b]Inclues BLM, NPS, and USF&WS comments.

3.2 Comment Documents

This section shows the six summary comments (S-1 through S-6) that represent approximately 1,450 comment documents received by DOE. It then provides each of the approximately 150 comment documents that DOE did not link to a summary comment. DOE did not edit the comment documents in any way.

Document #S-1 Summary Comment #1

More than 650 commentors supported relocation of the tailings pile to an off-site location. Only a few of these commentors expressed a preference for a location; however, many of them offered at least one reason for wanting the tailings moved away from the Colorado River. Several of the commentors stated a preference to move the pile north of Moab to either Crescent Junction or Klondike Flats, and most of those said that their preferred transportation mode was rail. Some commentors stated that the White Mesa Mill site is an unacceptable location.

When a reason for relocation was provided, commentors typically identified one or more of the areas of uncertainties discussed in the EIS (Tables S-1 and 2-33) associated with on-site disposal as their reason(s) for preferring relocation. Fundamentally, they either challenged the validity of DOE's assumptions or found the consequences of the uncertainties to be unacceptable. Most of these commentors gave at least one of the following reasons for supporting relocation:

1. Potential for long-term threat to the quality of the surface water (local and downstream) used for drinking and recreational purposes if the tailings were capped in place.
2. Potential for river migration to erode the tailings pile, with subsequent adverse impacts to human health and the aquatic environment.
3. Potential for 100-year floods and Probable Maximum Floods (PMFs) to release additional contaminants to the river, with subsequent adverse impacts to human health and the aquatic environment.
4. Potential for future releases of contaminants from a suspected but unconfirmed ammonia salt layer within the pile.
5. Potential for seismic events that would release additional contamination to the Colorado River.
6. Potential for the engineered cover to fail.
7. Potential for future subsidence of the pile to river level, resulting in unacceptable impacts to surface water quality.
8. Greater costs in the long term if the tailings were left in place rather than relocated.
9. Visual and aesthetic concerns, which may detract from tourism.
10. The need to protect human health and the environment, no matter what the cost.

Many commentors who rejected the White Mesa Mill site as an off-site disposal location did so based on potential impacts to cultural resources, traditional cultural properties, environmental justice impacts, plants and animals, human health, and the potential for ground water contamination. In addition, many of these commentors expressed concern that the tailings pile was placed near the Colorado River in the first place or that DOE failed to take action sooner. Many also said that legislation passed in 2003 requires the tailings to be relocated.

Document #S-2 Summary Comment #2

Seven commentors supported relocation of the tailings to the White Mesa Mill site. The reasons given by these commentors fell into two general categories: the benefits to the local economy, and the ability of the site to reprocess or store the tailings safely.

S-3 Summary Comment #3

More than 50 commentors said that the environment needs to be protected, without specifying whether the tailings should be capped in place or relocated. For these commentors, the primary concern was the potential long-term threat to the quality of surface water (local and downstream) used for drinking and recreational purposes. Several also suggested isolating the tailings so that they would not affect the Colorado River.

S-4 Summary Comment #4

Eleven commentors supported implementing the on-site disposal alternative. The two primary reasons given for their support of this alternative were as follows:

- The risks of on-site disposal are not high enough to warrant the cost to relocate the tailings.
- The on-site disposal alternative can be implemented in a manner that is protective of ground water and surface water.

S-5 Summary Comment #5

More than 640 individuals sent the following comment by electronic mail (e-mail):

"I urge you to revise or re-issue the Environmental Impact Statement (EIS) for the final reclamation of 12 million tons of uranium wastes that are contaminating the Colorado River near Moab, Utah. The final EIS should abandon the alternative of capping the radioactive waste at its current site on the bank of the Colorado River, and should instead identify a preferred alternative of moving the waste to one of two nearby Utah sites - Klondike or Crescent Junction.

"It is not acceptable to leave 12 million tons of mill wastes leaking into the Colorado River, directly in the path of a major flood. The radioactive wastes are now located in an unlined pile within the floodplain of the river and are leaking approximately 12,000-15,000 gallons per day of intensely contaminated fluids into an underground aquifer that immediately discharges into the river.

"The Klondike and Crescent Junction sites are in extremely stable, isolated areas that meet all the criteria for long-term disposal of radioactive wastes. The present location, on the other hand, fails every test for an appropriate site, since it does not provide long-term isolation from the human and natural environment below ground that will endure without the need for ongoing maintenance.

"Every possible savings from capping in place is offset by a huge risk of tailings failure. The decision to remove these mill wastes from the bank of the river is long overdue. I urge the Department of Energy to move the tailings pile away from the banks of the Colorado River to one of two sites identified above.

"Thank you for your consideration."

S-6 Summary Comment #6

More than 100 individuals sent the following comment by e-mail:

"I am writing to urge your Department to recommend removing all of the radioactive waste from the floodplain of the Colorado River near Moab, Utah as soon as possible. Congress has directed your agency to protect the river and downstream communities from the threat posed by 12 million tons of radioactive waste at the Atlas Mill site. Your department has already overseen the cleanup of a number of smaller and less dangerous uranium mill sites. I am very concerned about statements in the press suggesting that your department may choose to leave this ticking time bomb on the banks of the river because it would cost less than moving the material to a safer location.

"The massive pile of radioactive waste is very unstable and is less than half a mile from the river that provides water for 25 million Americans. The site pollutes the river now, floods with some regularity, and is in an area with a history of seismic activity.

"Secretary Abraham, this is no time to cut corners. The Colorado River is too precious and too many people depend on it to allow cleanup cost and the hope of containment to dictate your department's choice of action. Please direct your staff to recommend a full and immediate cleanup of the Atlas Mill site along the Colorado River.

"Thank you for your consideration of my comments."

Document #25 Darke, John Individual

Telephone Call Received on December 7, 2004 at 3:00 p.m.

John Darke

Looking at the December 3, 2004, Federal Register notice, pages 70256 and 70257. I appreciate that an entity-specific notice came forward with a little more actual notice.

On first impression going through the November DEIS with respect to scoping representation understanding staff response, it would appear after the fact in terms of decision makers document final EIS. Administratively in the scoping representation one technical aspect stood out. A member of the public plainly indicated that in terms of lateral migration that river ice and river debris dams were diverse structures and should be considered. I see no mention of debris. Perhaps someplace buried in the technical background this has been looked at. I'm going to review the total comments further in the scoping process. I would like in terms of finding representation of technical debris so I'm going to continue to comment because there was a state publication that appears to be overlooked.

Document #26 Darke, John Individual

Telephone Call Received on December 8 at 11:10 a.m.

John Darke

By way of procedure I have a concern. The comment line mailbox is full. The procedure for getting assistance in utilizing the reading room routes through the comment line. I think most people have a respect for the hard work DOE staff would prefer the "on the record" comment line rather than rolling over to an extension.

Speaking of on the record when the pertinent parts of the Draft Environmental Impact Statement are reviewed as you work through understanding of the public scoping you're left with a very short of key word sound like representation of the verbal suggestion respectfully requested on-the-record scoping process. (I'll try to speak slowly so you can copy it.)

Continuation at 11:20 a.m.
My comments are about the administrative bottleneck particularly 1.5 public and agency involvement and particularly 1.5.1. There are persons, as I recall, that cover a lot more ground than reflected in the synopsis within the Draft Environmental Impact Statement reveals with respect to scoping dealing with particularly where the new information that has emerged in terms of the extent of ground water contamination and a very technical aspect of the proposal within the decision makers document the DEIS. To give an example, although the 7.5-minute quadrangle geologic map makes reference to a study by the state salt deformation in the in the Paradox region I can't even pronounce even though the 7.5-minute map and the preliminary and base…

Continuation at 11:20 a.m.
I was calling about the lack of referral as far as I can find to Utah State Geological and Mineral Survey Bulletin 122, 1988, Salt Deformation in the Paradox Region. I am particularly concerned because the preliminary and base maps utilize via the most available if not the most accurate 7.5-minute geology map. Probably given a [inaudible] who is based on two monographs the bulletin geology of the salt valley anticline but also in the title and Arches National Park, Grand County, Utah also is in that Bulletin 122 tying the deformation related to the Paradox salts in the Canyonlands area of Utah. Peter W. Huntoon. I can recall understanding the hypothetical nature of that bulletin that it has residence and particularly with respect to the brine and hydrologic communication of the brine across the river and solvents work of December 2003 and I'm concerned because there was obvious professional disagreement between DOE staff and contractor staff and State of Utah staff and contractor. We have great professional opinion. So I would really like an understanding of where within the bases of the SOWP and the bases of that…

Continuation at 11:30 a.m.
So I really need a better understanding and guidance of where within the technical literature available to the public. I could find a reflection of what I consider to be a pertinent bulletin hypothetical or no and particularly with respect to the salt/salt brine protected water. I can't find it. It keeps backing off the possibility of where the site contamination went and in the fact of different professional opinion I feel that it is important that this is resolved promptly or at least

the opportunity to comment on the discrepancy in terms of what the DOE proposes in the decision makers document. The public accesses this document. If I could please receive guidance as to how, in the [inaudible] of the information ,I could efficiently find the reflection of that bulletin so I would have confidence that it was taken into consideration. It might be hidden in plain sight in some reference somewhere besides the 7.5-minute quadrangle map and it might be in the working papers. It just didn't show up in the reading…

…Microtectronics as a matter of fact there is a letter early on in the NRC environment…

If somehow I could receive reference to this material I would appreciate it.

Document #27 Darke, John Individual

Telephone Call Received on April 13, 2005 at 11:20 p.m.

John Darke

I've been researching MED AEC access activities in the area and the river road of course was a U.S. Bureau AEC road. In the process I ran across two articles, one January 1, 1953, page 1, The Times Independent, Volume 58, number 1, and December 23, 1954, number 50, of the successive volume.

As you'll recall—I'll take the second article first—in the scoping process I had concerns about the interaction of river debris and ice among other places at the bridge upstream from the Moab site. In the December 23, 1954, Number 50 on page 1 it says "Ice Jam Threatens Work on New Bridge." As you know, the old bridge was replaced after being found to be a little shaky. That's in the last column to the right, the previous article of January 1, 1953, I would like to back up. The other article and this is a correction. I'll call back.

11:30 a.m.
Continuation of the previous message.

The December 23, 1954, article had Volume 59, Number 50, dealt with the ice jam on old Highway 160 at the bridge crossing the Colorado River, that was on page 1.

The second article also deals with the new bridge and it indicates that on March 19, 1953, had Volume 58, Number 12. The title of the article…soundings for new bridge…and it indicates that essentially they found (a) the bed load to be deeper, the river cut much deeper, and that there was, I'll quote "a shear structure a false structure there which given M Bar given 0435 MAO 0435 and given Doelling's map of the 7.5 minute quadrangle…survey."

I can't find where there is documentation of that at the bridge and between 3, 4 to the extent of that still relied upon, I can't see that. So that part of March 19, 1953, I think it should be reviewed. The data is there.

Take it easy.

Document #28 Cloud, Neil B. Southern Ute Indian Tribe

SOUTHERN UTE INDIAN TRIBE

#28

December 8, 2004

Moab DEIS Comments
U.S. Department of Energy
2597 B ¾ Road
Grand Junction, Colorado 81503

Re: Moab Uranium Mill Tailings Project

Dear U.S. Department of Engery:

I have reviewed your letter regarding the DOE's proposal to clean up surface contamination and implement a ground water compliance strategy to address contamination on the Moab uranium ore processing site. At this time the Southern Ute Indian Tribe does not wish to comment. Thank you for your correspondence. In the event of inadvertent discoveries of Native American cultural sites, artifacts, or human remains, the Southern Ute Indian Tribe would appreciate immediate notification.

Should you have any questions or require additional information, please do not hesitate to contact me at the number listed below, extension 2209.

Sincerely,

Neil B. Cloud

Neil B. Cloud
NAGPRA Coordinator

Cc: Howard D. Richards Sr., Chairman
Southern Ute Indian Tribe

P.O. Box 737 • Ignacio, CO 81137 • Phone: 970-563-0100

Document #31 Walker, Olene S. Former Governor, State of Utah

STATE OF UTAH
OFFICE OF THE GOVERNOR
SALT LAKE CITY
84114-0601

OLENE S. WALKER
GOVERNOR

GAYLE F. MCKEACHNIE
LIEUTENANT GOVERNOR

#31

December 29, 2004

Don Metzler
Moab Federal Project Director
U.S. Department of Energy
2597 B ¾ Road
Grand Junction, CO 81503

Dear Mr. Metzler,

I am writing in concert with the approval of Governor Schwarzenegger of California, Governor Napolitano of Arizona, Governor Guinn of Nevada, and Governor Richardson of New Mexico regarding the pending decision by the Department of Energy (DOE) that will impact all downstream users of the Colorado River. A draft Environmental Impact Statement (DEIS) has been issued for the Moab Uranium Mill Tailings pile located on the banks of the Colorado River. DOE did not specify a preferred alternative for either stabilizing the pile in place or moving the pile to an alternative site away from the river. This is the only pile of tailings still left on the Colorado River. The State of Utah and many other stakeholders have consistently maintained the position that these tailings must be removed to a secure off-site location away from the river.

We have been working for several years with the federal government to resolve many questions associated with the pile. When the site operator went bankrupt, we supported federal legislation to transfer the authority to remediate the pile to the Department of Energy. As a result, DOE was given the responsibility to manage this large volume of tailings and resultant environmental issues associated with it. For years, contaminants, including heavy metals, ammonia, and radiologics, have been entering the Colorado River from the tailings pile, degrading the overall quality of the river, and threatening several species of endangered fish. As part of the transfer of authority, federal legislation required the National Academy of Sciences (NAS) to study the remediation of the pile and provide information to DOE. NAS was clear that consideration of long-term impacts should help guide the eventual remediation decision. At this juncture in the process, after many years of technical review and study, uncertainty remains that stabilization of the tailings on-site is a responsible decision. The Utah Department of Environmental Quality will be presenting compelling arguments in their DEIS comments to suggest that the factor of the potential of river migration alone is

#31, p2

a long-term impact that can only be mitigated by removal of the pile from the banks of the Colorado River.

There is broad support for moving the tailings from local, state, and federal stakeholders that have toiled for several years to achieve that goal. We appreciate the work accomplished and the ongoing stewardship responsibilities for the Moab Millsite by DOE. We want to make it clear that any remediation other than an off-site option is unacceptable.

Sincerely,

Olene S. Walker

Olene S. Walker
Governor

Document #33 Swasey, G.R. and Verla Individual

From: gvs [gvs@preciscom.net]
Sent: Saturday, January 08, 2005 5:25 PM
To: moabcomments
Subject: Moab Tailings Pile

This message is about the Atlas tailings pile or pond ..we think it will become a downwinders mess as the wind will blow & the City of Moab and the surrounding area will be covered with radiation and chemical soil..so if your dept and the government are ready to accept the people who will be affected now and later into the years, then I would like to make a suggestion..::::::::::::
drill wells into the tailings pile & into the bedrock, case the gravel, pipe the water to Klondike flats where it will evaporate, it can be covered or capped & the river water will come back into the pile & the pile can be capped. A concrete barrier wall will be needed between the river and the pile.
thanks for listening

G.R. & Verla Swasey

Document #34 Nielsen, M. Gail Individual

From: Granngramp@aol.com
Sent: Sunday, January 09, 2005 3:14 PM
To: moabcomments; nielsenles@cox.net
Subject: Yellow mud Cake

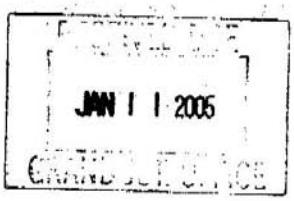
I worked at the mill at hite during the 1951 summer. I'm seventy seven years old and still going strong, and no ill effects from the U3O8.

M Gail Nielsen 217 West 900 South, Orem Utah

Document #36 McDermott, Patrick Community of Bluff

COMMUNITY OF BLUFF
BLUFF SERVICE AREA BOARD OF TRUSTEES
P.O. Box 310, Bluff, Utah 84512

#36



January 6, 2005

Joel Berwick
Moab Project Manager
US Department of Energy
2597 B ¾ Road
Grand Junction, CO 81503

re: Comments from Bluff, Utah Regarding Atlas Mill Tailings Site and Proposed Pipeline to White Mesa

Dear Mr. Berwick;

San Juan County Ordinance No. 1992-3 established the Bluff Service Area and specified that our board was to provide culinary water services and to manage storm water drainage, among other powers.

Bluff's culinary water supply is derived from an aquifer within the Navajo Sandstone Formation. The recharge zone of our culinary water supply lies, in part, directly under the proposed White Mesa Mill site. The flexible membrane liners at White Mesa Mill were installed in 1980 and have been shown to leak by a report conducted by Titan Environmental in 1994. Our sole culinary water supply is directly at risk from this project.

Furthermore, surface runoff and other stormwater drainage flows over the White Mesa Mill site into Westwater Canyon, which then joins Cottonwood Wash, which flows right through the middle of Bluff.

Therefore, the Bluff Service Area Board of Trustees would like to express our opposition to the proposed transport of Atlas Mill tailings to White Mesa. Storage of these tailings at White Mesa would negatively affect our ability to protect our sole culinary water supply. Potentially contaminated surface runoff would impair our abilities to safely manage stormwater drainage in Bluff.

The Bluff Service Area Board of Trustees voted unanimously in this matter and the people of our community are solidly behind us in our desire to protect our water supply and our health.

Thank you for considering our request that none of the Atlas Mill tailings be moved to White Mesa.

Sincerely,

Patrick McDermott,
Chairman

Document #37 Darke, John Individual

Telephone Call Received on January 13, 2005, at 10:10 a.m.

John Darke

Request that the recent report on the two injection recovery wells, if it could get to the library as soon as possible if it hasn't already to the reading room and a circulation copy would be a good idea. I can't request this officially for the library. But I hate to get in this sort of suspense and …if I had access to it briefly. I'm strictly interested in the information containing the data particularly, and of course the description of the boreholes and wells.

The second aspect is that I get a distinct feeling that there is a [inaudible] political activity that I feel is beginning to intrude via the labor process on the decision-making for which entails the draft of the environmental impact statement. I can't really throw stones, but I've made verbal comments via the hot line and I'm sure you've already received written comments.

I'm looking forward to the DOE staff presentation at the meeting on the 24th. There has been local preparation, so that's on the side really, but I hope it's a full presentation.

Continuation at 12:50 p.m.
Thank you for the opportunity and all my interactions on the hot line should be comments most of them deal with process. In my previous message this morning, I indicated that I had a chance to briefly review the [inaudible] and I requested that a circulating copy go along with the archival copy at the reading room at the Grand County public library. When I went down to the references, I noticed two reference books that the staff apparently in part utilizes for, well I use them when I completely fog out and U.S. Forest Service or some concept in terms of ground water and I wonder if it might be a good idea and appropriate if the DOE could place a circulating copy of these reference materials. The decisions entail getting to the DEIS and where the DEIS evolves into the final EIS and the implementation of the decision-making process. I feel since to my mind the technical documents supporting the DEIS are excellent and the contributory materials such as that I discussed earlier this morning is a godsend that it would be helpful if the community—it's not going to be the most popular book in the stack—but that certain portions of the community have access to reference material that would further enlighten them with the tack taken by the technical person.

Document #42 Darke, John Individual

Telephone Call Received on January 28, 2005 at 10:50 a.m.

John Darke

I received, under cover of a note dated January 26 05, material which was proposed to be responsive to a request for information which is needed in order to respond to FR 6970256 and subsequent FR. I appreciate the effort made; however, I am not looking at the record which apparently, but not necessarily, was called the public reading room. If there was action of the previous committee records occurred. I feel it can be mitigated in one of the boxes. My best information of the materials that were turned over to the DOE Grand Junction Office by PricewaterhouseCoopers the 1973 preliminary survey and attached records is available. Time does not permit me on the phone to spell it out but the references in the …agency 1987 vicinity properties and I will get an email to you to substantiate this phone call.

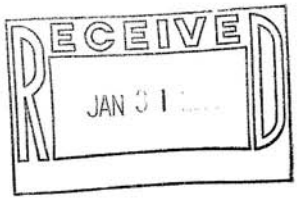
Continuation at 11:10 a.m.
This is a comment on the record of Federal Record 697025, September 3, 2004, and subsequent Federal Register notice. In a meeting that I attended recently, I spoke to the project director and showed that project director figure 3-8 of "Conceptual Model, Salt Water/Freshwater Interface" found in the Remediation of the Moab Uranium Mill Tailings Grand and San Juan Counties, Utah, Draft Environmental Impact Statement. I indicated that the word "brine" in that conceptual model was misleading. As a matter of equity, I would like to place on the record that communication. Subsequently, I spoke to the project engineer, there was an illustration in the room and I drew that person's attention to a well field injection and recovery wells and a supplementary well field at the banks of the Colorado. I was speaking about the Fall 2004 performance assessment of the ground water interim action well fields at the Moab, Utah, project site dated January 2005. I pointed out that, in that you have a drawdown of the extraction wells, that you have a communication with the Colorado River … zone, resulting in piping in both directions, which I have concerns about.

Continuation at 11:20 a.m.
This is a continuation of the comments by John Darke. I was speaking of a communication between myself and the project engineer and previously the project director. I continue to comment about DOE EM/GJ769-2004…that January 2005 record indicates…I feel there is irretrievable commitment of resources, that there was an action taken, albeit in the interim, which created a pathway between the river and the errant soils that encompasses the river between essentially contaminated on-site areas and the river. The implications are that Grand Junction project has acted, and I feel the concurrence by the NRC oversight mechanism was required for the activity exhibited by the January 2005 report. As a matter of equity, I feel that it is important when I am not asking for additional information in order to comment that it goes on the record. Some persons cannot fire off an email or whatever, but I feel that the preconceive of that situation would require immediate response. Title I is plain and it indicates that under certain circumstances, concurrence by the NRC is required. I feel this is a circumstance, again…*(cut off by telephone system)*

Document #43 Baker, Pamela W. Individual

Pamela W. Baker
1950 Roadrunner Hill
Moab, UT 84532
January 27, 2005

#43



Moab DEIS Comments
US Department of Energy Grand Junction
2597 B ¾ Road
Grand Junction, CO 81503

Dear Sir:

After attending the local public hearing on the Moab Draft Environmental Impact Statement and reading the Executive Summary, I would urge you to **move the tailings pile to the Klondike Flats location.**

Considering the extent of the interim actions the DOE has already instigated (i.e. restricting site access, monitoring ground and surface water, storm water management, dust suppression, pile dewatering, placement of an interim cover) you are aware of the toxicity of this pile. These activities do not even address the acknowledged reality that the extent of the contamination of vicinity properties is currently unknown. We local citizens are concerned that the money spent on this project be well spent toward a **permanent solution.** We are interested in the long-term results for the environment as well as human health not only for our local community, but also for the future of the downstream users of the Colorado River.

Capping the pile in place does not address a permanent solution. **We do not want to spend additional funds in the future to move the pile.** We want it done properly the first time. This is the **cheapest alternative**. Not only is the Colorado River a vital resource to our community, it is important to millions of users downstream as well as nationally for the food produced in California from its irrigation water. We cannot contaminate the future. The impact of large floods in the drainage system or local flashfloods in the Moab Valley cannot be adequately predicted. However, we do know that the power of water to move large volumes of sediment is very real. We do not want this toxic material redistributed either in our local area via flooding of the Moab Valley, nor downstream via a cataclysmic deluge. This is potentially quite expensive.

As to known outcomes, your own executive summary on Page 19 says that **on-site disposal would potentially require prohibitions on the use of ground water for drinking "in perpetuity to protect human health."** On the other hand, the same paragraph states "Under the off-site disposal alternatives, contaminant concentrations in the ground water under the Moab site would return to background levels after 150 years". Let's get this right the first time. Let's protect the future.

Sincerely,

Pamela Baker

Document #45 Whiskers, Thelma White Mesa Concerned Community

#45

White Mesa Concerned Community

P.O. Box 1007, Blanding, Utah 84511

January 26, 2005

Secretary Spencer Abraham
U.S. Department of Energy
1000 Independence Avenue, SW
Washington, DC 20585

Re: DOE Violation of Executive Orders 12898, 13007, and 13175 and the Protection and Preservation of Traditional Religions of Native Americans, 42 U.S.C.A. § 1996.

Dear Secretary Abraham:

This is a formal complaint in response to the fact that the Department of Energy (DOE) is discriminating on the basis of race and in a manner that could desecrate legally-protected sacred sites, devastate cultural and spiritual beliefs, and have a profound negative impact on the spiritual and cultural practices, well-being, health and environment of the White Mesa Ute people. The DOE's actions violate several Executive Orders and federal statutes.

This complaint is brought by White Mesa Concerned Community, a grassroots organization of Ute Mountain Ute tribal members from the White Mesa Ute Community. The United States Department of Energy (DOE) violated Executive Orders and other statutes by employing a defective and biased evaluation process that places the members of the White Mesa Ute Community, our sacred sites and spiritual well-being in danger. The DOE continues to consider the International Uranium Corporation (IUC) White Mesa Uranium Mill as a possible site for disposal of radioactive and toxic materials that would be transported from the defunct Atlas Uranium Mill in Moab, Utah. The White Mesa Ute Community is less than three miles from the proposed placing of the uranium tailings. This close proximity guarantees that the members of the White Mesa Ute community will suffer a disproportionate threat to their health in addition to suffering desecration to sacred and culturally significant sites, and severe negative impacts on their spiritual well-being, cultural traditions and religious practices. **The DOE must therefore immediately exclude the International Uranium Corporation facility at White Mesa from consideration for the disposal of the Atlas Uranium Mill tailings.**

INTRODUCTION

The members of the White Mesa Ute Community are members of the Ute Mountain Ute Tribe, a federally recognized Tribe. The DOE is considering the IUC White Mesa Uranium Mill as a

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possible disposal site for radioactive tailings and hazardous materials from the Atlas Uranium Mill in Moab, UT (the "Moab Project") approximately 85 miles north of White Mesa. The residents, sacred sites, culture, spiritual well-being, traditions, health and environment of the White Mesa Ute Community are threatened by this proposal.

The boundary of the White Mesa Ute Community is contiguous with the IUC White Mesa Uranium Mill. Resident tribal members live approximately 2 ½ miles south of the Uranium Mill. The White Mesa Ute Community is the closest community and residential population to the IUC facility. Approximately 300 tribal members live on the White Mesa Ute Community reservation, located in southern Utah, between Blanding and Bluff.

The White Mesa Uranium Mill was built in 1979 by Energy Fuels Nuclear, Inc. to process uranium ore from the Colorado Plateau. In 1997, IUC bought the Uranium Mill and began receiving "alternate feed material" (uranium-bearing radioactive wastes) for processing. Due to falling uranium prices, IUC suspended all U.S. mining activities in 1999 and since then the uranium mill has relied exclusively on alternate feed, which it accepts from sites across the U.S. Once the uranium is extracted, the radioactive and toxic tailings and processing chemicals are placed in tailings impoundments on site.

The IUC facility was built directly on top of and next to hundreds of profoundly sacred sites, including ancient burials and ceremonial sites. The milling and disposal of radioactive and toxic materials at the facility has had and continues to have a profound and devastating impact on the spiritual and cultural well-being of the Ute people at White Mesa, and desecrates hundreds of ancient cultural, sacred and archaeological sites at White Mesa.

The IUC facility poses a serious and disproportionate threat of environmental and health hazards for the White Mesa Ute Community. The tailings ponds, which were constructed with thin plastic liners between two layers of crushed rock, contain highly toxic and radioactive materials such as lead, uranium and sulfuric acid. It is likely that these ponds will leak, and the leak detection system in operation will not detect a leak until the groundwater below has already been contaminated.

The IUC facility also emits radioactive and toxic air pollutants including radon and thoron gases and sulfur dioxide particulates. Windblown particulates and gases travel off the IUC site and onto the White Mesa reservation. Tribal members frequently smell the toxic chemicals used during the processing of the alternate feed. Tribal members regularly witness dust blowing off site, and onto the reservation, as a result of the strong winds common to the area.

STATEMENT OF FACTS

The residents of the White Mesa Ute Community are now facing a new danger. The Department of Energy (DOE) is considering IUC's White Mesa Uranium Mill as a possible disposal site for radioactive tailings and hazardous wastes from the defunct Atlas Uranium Mill in Moab, Utah, approximately 85 miles north of White Mesa. The Altas Uranium Mill site, now called the Moab

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Project site, but referred to as "Atlas Uranium Mill" in this complaint, is a former uranium ore-processing facility located on the north side of the city of Moab. The Uranium Mill is sited on the west bank of the Colorado River and is less than one mile from Arches National Park. The uranium mill tailings were disposed of in a tailings impoundment on site from 1956 until 1984. The tailings pile contains roughly 11.9 million tons of tailings and covers 130 acres next to the Colorado River. In fact, the Atlas Uranium Mill tailings are currently leaking ammonia and other contaminants into the Colorado River and thus must be moved.

IUC has proposed building an 85-mile long pipeline to bring the tailings and waste from the old Atlas Uranium Mill in Moab to the IUC White Mesa facility. This pipeline would be used to slurry the wastes, mixed with water, to the White Mesa location. Massive amounts of water would be needed for this project and would consequently become contaminated. Not only is it unwise to contaminate such large amounts of a resource so valuable in this region, but the contaminated water and other waste material will also create new threats. The water would then be placed in evaporation ponds, which would mean that the contaminants would evaporate into the air, and leakage would threaten groundwater below. The health and environment of nearby residents – the White Mesa Ute Community – would be directly threatened by the "evaporation" of radioactive and toxic materials and their release into the surrounding environment, as well as from the disposal of the remaining radioactive and toxic materials.

The disposal of materials from the Moab Project would also interfere with the traditional cultural activities of the White Mesa Ute Community, including the gathering of local plants and herbs and subsistence hunting of local animals. Tribal members gather willows for baskets, medicinal plants for Ute "nuch" tea, berries and sage in the area near the uranium mill. White Mesa residents are concerned about the effects of contamination of these and other plants and the consequent health impacts that would result from the ingestion of contaminated plants. White Mesa is also home to deer, ducks, eagles, hawks, birds, wild dogs, prairie dogs, big horn sheep, rabbits, and porcupine. Tribal members have reported increasing numbers of tumors in some of these animals. The risk of contamination of their food impacts the ability of tribal members to hunt and practice their cultural and traditional ways.

Approving the tailings slurry pipeline and transporting the waste from the Atlas Uranium Mill in Moab to the IUC White Mesa Uranium Mill will directly and illegally destroy and desecrate many of the ancient sacred, cultural and archaeological sites at White Mesa. The volume of the Atlas tailings exceeds the capacity of the White Mesa Uranium Mill's existing tailings ponds. As a result, two new ponds would need to be constructed. The construction of these ponds will result in the destruction and further desecration of many sacred and significant archaeological and cultural sites. The construction of the pipeline itself would also destroy archaeological and culturally significant sites. At least eight archaeological sites would be obliterated if White Mesa were chosen for the Moab wastes, many more would be threatened. Adding additional radioactive tailings and toxic materials to the site in and of itself will have a significant, profound impact by desecrating all the spiritual and cultural sites in the area, and interfering with the spiritual well-being of the Ute people.

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While the DOE is considering several potential sites for the disposal of the Atlas Uranium Mill tailings, it has already removed from consideration two communities, the East Carbon landfill and an existing DOE waste site at Green River. These communities were removed from consideration in part because of the impact of the project on the residents. The residents of both East Carbon and Green River are primarily white, and those residents actually live farther from their waste sites than the Ute tribal members live from the White Mesa Uranium Mill.

On December 20, 2002 the Department of Energy published in the Federal Register a "Notice of Intent to Prepare an Environmental Impact Statement and To Conduct Public Scoping Meetings, and Notice of Floodplain and Wetlands Involvement for Remediation of the Moab Uranium Tailings Site in Grand County, UT." The content of this notice, and several actions by the DOE in carrying out this process, have had a discriminatory and disproportionate impact on the low-income, people of color of the White Mesa Ute Community.

The notice, and subsequent information and presentations provided by the DOE, failed to mention the existence of the White Mesa Ute community, let alone mention the proximity of the community to the White Mesa Uranium Mill. Discussion of other potential sites, such as East Carbon and Green River, very clearly referenced the nearby community. However, White Mesa, located adjacent to the IUC facility, was completed omitted, as though it does not exist. No mention of the White Mesa Ute Community was made in the initial DOE documents, maps, or the Federal Register announcement.

At the January 22, 2003 scoping meeting in Moab, Utah, and the January 23, 2003 scoping meetings at White Mesa and in Blanding, the DOE displayed a large map that again omitted the White Mesa Ute Community. Written information containing a map that omitted the community was distributed to the participants. Consequently, members of the public being asked to participate in the scoping process were given flawed and inaccurate information to comment on. People who would have commented on the proximity of the White Mesa Ute Community reservation during the scoping process were not provided accurate information. Thus, they were denied their right to participate in the National Environmental Protection Act (NEPA) scoping process as informed citizens.

The omission of White Mesa from the DOE's Notice of Intent and from their original maps for this project seriously taints the idea of an informed, fair and participatory process. As a result, this process has a significant discriminatory and disproportionate impact on the residents of the White Mesa Ute Community.

Despite the inaccurate representations of the presence of the Ute community, Ute tribal members and others attended the scoping meetings. They repeatedly and strenuously opposed the IUC proposal for a slurry line, citing profound cultural, environmental and health impacts of the proposed project. They submitted written and oral comments to the DOE, documenting why IUC's White Mesa facility should be eliminated from consideration.

On September 14, 2003 the DOE held a "consultation" between DOE officials and Ute tribal

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governments in Moab, Utah. The purpose of the "consultation" was to identify how each off-site disposal plan could affect tribal cultural resources and practices, as well as water and air pollution. White Mesa tribal members, along with official representatives of the Ute Mountain Ute Tribe and other Ute tribes, attended this meeting and emphasized the importance of removing White Mesa from the list of possible disposal sites for the Moab tailings. Tribal officials expressed outrage that other potential sites (East Carbon and Green River) were eliminated from consideration, but White Mesa was still being considered, even though the White Mesa Ute Community is directly adjacent to the IUC facility. Tribal officials also denounced the DOE's continued ignoring of the fact that disposal of the Atlas tailings at White Mesa would have a tremendous negative cultural and spiritual impact on their people, well-being, traditions and culture. Tribal officials expressed their belief that this meeting did not qualify as a legitimate "government to government consultation," as the DOE was ignoring all the concerns of the tribes.

On November 30, 2004 the Department of Energy released a Draft Environmental Impact Statement setting forth what the DOE says are the "full range of reasonable alternatives and associated environmental effects of significant federal actions" for the Moab, Utah, Uranium Mill Tailings Remedial Action Project Site. The announcement of the release was made in the Federal Register on December 3, 2004.

Ignoring the facts presented by the Ute Mountain Ute Tribe, tribal members and other members of the public documenting the devastating impact that disposal of the Moab tailings and waste would have if disposed of at the IUC mill, **the DOE has violated environmental justice, trust responsibility and sacred site protection mandates by continuing to consider the IUC White Mesa facility as a "reasonable alternative." There is nothing reasonable about dumping radioactive tailings and toxic waste on top of ancient, profoundly sacred sites including burials and ceremonial sites. It is environmental racism and a violation of federal trust responsibility.**

The tribal members have serious and well-founded concerns that the waste from Moab could harm the health of the tribal members. The Ute Mountain Ute Tribe officially, and strongly, opposes the 85-mile slurry line and has demanded repeatedly that the DOE take White Mesa off the list of options for the disposal of the Atlas tailings. However, despite the Utes' concerns and pleas, and despite the fact that white communities who faced much less risk have been eliminated from consideration, the DOE is continuing its examination of the feasibility of the White Mesa proposal.

By continuing to consider the IUC facility at White Mesa as a recipient of the radioactive and toxic materials from the Moab project and ignoring the extremely serious disproportionate religious, spiritual, cultural, health and environmental threats posed by the project to the White Mesa Ute Community, the DOE violates Executive Orders 12898, 13007 and 13175 and the Protection and Preservation of Traditional Religions of Native Americans Act, 42 U.S.C.A. §1996. If the IUC facility is approved as the recipient of the tailings and waste from the Moab project, the White Mesa Ute Community would bear a disproportionate share of the nation's

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environmental dangers. The proposal has a severe negative impact on the White Mesa Ute Community's religious freedom, severely threatens their cultural and traditional practices, desecrates their scared sites and threatens their health and environment. This discriminatory impact cannot continue to be ignored by the DOE.

EXECUTIVE ORDER 12898: ENVIRONMENTAL JUSTICE

Executive Order 12898 requires federal agencies to take environmental justice concerns into consideration in the decision making process. Specifically, Executive Order 12898 states that "...each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies and activities on minority populations and low-income populations in the United States and its territories and possessions."

Section 1-103 states that each Federal agency shall promote enforcement of all health and environmental statutes in areas with minority populations. Further, Section 2-2 maintains that a Federal agency shall not subject persons to discrimination under its programs, policies and activities, because of their race, color or national origin.

The DOE, as a Federal agency, must therefore consider and avoid any discriminatory effects of the IUC proposal for the White Mesa Ute Community. The Ute Mountain Ute Tribe is a federally recognized tribe, and as such, must be taken into consideration as a community of color. The DOE must not place a disproportionate environmental burden on this community.

The DOE violates this executive order in at least three ways. First, they have not taken into consideration the cultural, spiritual, religious and traditional aspects of the Ute Mountain Ute Tribe. The disposal of radioactive and toxic materials from the Atlas site in Moab at the IUC White Mesa Uranium Mill will destroy and desecrate profoundly sacred and culturally significant sites at and next to the IUC facility, have a tremendous negative impact on the spiritual practices and spiritual well-being of tribal members, and further impede the traditional cultural practices of White Mesa tribal members Tribes' burial grounds. Due to the large volume of toxins that will be released into the air and water, the proposed tailings uranium mill will create adverse effects on the Tribes' subsistence hunting and gathering of traditional herbs, plants and medicines, essential to their survival as a people and culture.

Second, not only has the DOE failed to take the damage to the sacred sites into consideration, but it is also causing a disparate impact on a community of color based on race. The DOE has eliminated from consideration communities that are located farther away from their waste sites than the White Mesa community is from the White Mesa Uranium Mill. By withdrawing communities that are mainly white from consideration but continuing to consider a community of color as a potential site for its hazardous slurry line, the DOE directly violates the Executive Order. This forces a disproportionate environmental burden on a community of color. The proposed pipeline to the White Mesa Uranium Mill will be in addition to the operations of the White Mesa Uranium Mill. The additional waste will place a disproportionate burden upon the

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White Mesa community.

Third, the DOE fails to identify adverse human effects on a community of color because the DOE failed to even place the White Mesa Ute Community on maps of the area. Beyond failing to seriously consider issues of environmental justice, the DOE has engaged in a dangerous step. It is continuing the trend of eradication of Indigenous tribes by masking their existence, considering issuing a permit to allow more radioactive and toxic waste to be placed in tailings ponds near the community and directly on top of their sacred sites, all the while not informing the general public of the existence of the White Mesa Ute Community. As a result, the White Mesa Ute Community and the Ute Mountain Ute Tribe could be exposed to radioactive and hazardous wastes in their air, suffer the poisoning of their groundwater supply, suffer the desecration of sacred sites and severe harm to their spiritual well-being.

EXECUTIVE ORDER 13007: SACRED SITES

Executive Order 13007 provides for the protection of Indian Sacred Sites. The Executive Order provides that, "in managing Federal lands, each executive branch agency with statutory or administrative responsibility for the management of Federal lands shall accommodate access to and ceremonial use of Indian sacred sites by Indian religious practitioners and avoid adversely affecting the physical integrity of such sacred sites."

Under this Executive Order, the DOE maintains the responsibility for preserving the integrity of sacred Indian sites. In constructing the proposed slurry line, numerous archaeological and culturally significant sites could be destroyed, and many sacred sites at White Mesa would be desecrated and destroyed for expansion of the IUC facility to accommodate the tailings and waste from the Moab project. This is in addition to the numerous sacred sites that were destroyed when the Uranium Mill was originally constructed, as well as the ongoing, continuous desecration of and disturbance to sacred sites at White Mesa as a result of the ongoing activities at the facility. It is the duty and lawful responsibility of the DOE to remove White Mesa as a potential site for the disposal of the Moab project tailings and waste in order to prevent the further desecration of these sacred burial sites and other significant cultural sites. Any action to the contrary will be in direct violation of this Executive Order.

EXECUTIVE ORDER 13175: TRIBAL CONSULTATION

The President issued Executive Order 13175 "in order to establish regular and meaningful consultation and collaboration with tribal officials in the development of Federal policies that have tribal implications." It is the duty of the DOE to work in *meaningful* consultation with Tribal officials. Section 5 of the Executive Order provides, "each agency shall have an accountable process to ensure meaningful and timely input by tribal officials in the development of regulatory policies that have tribal implications."

As stated earlier, the Ute Tribal Council strongly opposes the construction of this pipeline. Ute Mountain Ute tribal leaders and representatives have met repeatedly with the DOE to discuss,

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and oppose, the IUC proposal. The Ute Mountain Ute Tribe and tribal members believe that the IUC plan poses significant risks to its White Mesa residents and sacred sites. As eloquently stated by a council member, "Which part of 'no' don't you understand?"

The DOE has completely disregarded the concerns of the Ute Mountain Ute Tribe and thus violates both the letter and the spirit of the Executive Order. The Order specifically calls for "meaningful" consultation and collaboration. By continually ignoring the concerns and wishes of the Tribe, the DOE fails to engage in any kind of collaboration, let alone meaningful consultation and collaboration.

Protection and Preservation of Traditional Religions of Native Americans, 42 U.S.C.A. § 1996

In addition to violating the Executive Orders, the DOE violates 42 U.S.C.A. §1996 which provides that the United States shall preserve for American Indians their inherent right of freedom to believe, express and exercise their traditional religion.

As stated above, the disposal of the Moab project material at the IUC White Mesa facility will result in the destruction of previously undisturbed sacred sites. Tribal officials and White Mesa Ute Community tribal members have repeatedly told the DOE of the sacred spiritual and cultural significance of these sites. The DOE is well aware of the archaeological studies done for the federal government at the White Mesa Archaeological District that confirm the significance of the ancient sites there, including the presence of many burials and ceremonial kivas.

The area is sacred to both the Utes and the nearby Navajo people. Archaeologists have documented the presence of large pit houses and ceremonial kivas, storage structures, burial sites, fire pits, middens, and numerous artifacts of daily life. In 1979 and 1980, the Nuclear Regulatory Commission (NRC) and the Bureau of Land Management (BLM) designated this area a potential archaeological district and recommended it for inclusion in the National Register of Historic Places. The Keeper of the National Register determined that the uranium mill lands at White Mesa were eligible for the National Register as an archeological district.

The preservation of these sites is necessary for the preservation of the spiritual well-being of the White Mesa Ute Community. Tribal members have repeatedly made clear the profound respect that community members have for their ancestors, and the importance of preserving the integrity of the sacred sites including burial sites of their ancestors. These sites are also an important part of the Community's ability to worship, as they are used for many traditional gatherings. Destroying these sites will directly interfere with the tribes' freedom to exercise their traditional religion.

REMEDY

The White Mesa Concerned Community, comprised of members of the Ute Mountain Ute Tribe, request the following remedies:

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(1) The Department of Energy must immediately uphold and comply with all applicable Executive Orders and laws and remove the International Uranium Corporation White Mesa Uranium Mill from consideration as a possible site for the disposal of the Atlas Uranium Mill tailings and associated wastes;

(2) The Department of Energy must exclude the IUC facility from consideration for receipt of any other tailings or waste material from any other source;

(3) The Department of Energy should educate all staff and contractors about Executive Orders and laws protecting sacred sites, religious freedom and practices, and environmental justice.

CONCLUSION

The Department of Energy, as a federal agency, is mandated to uphold the law and abide by Executive Orders. The Department of Energy must not take actions that have a discriminatory or disproportionate impact on people of color or other low-income populations. It must protect sacred sites and not interfere with traditional religious freedoms and practices. The Department of Energy's actions and decisions to date regarding shipping material from the Atlas Uranium Mill to the IUC facility have not complied with the laws and Executive Orders cited in this complaint. The result is a direct violation of the civil rights of members of the White Mesa Ute Community of the Ute Mountain Ute Tribe.

Our civil rights, sacred sites and religious, cultural and traditional practices must be respected, by law and by right.

Respectfully submitted by White Mesa Concerned Community

Thelma Whiskers
Thelma Whiskers

Yolanda Badback
Yolanda Badback

Document #47 Dohrenwend, John C. Individual

DRAFT *ENVIRONMENTAL IMPACT STATEMENT* #47
FOR THE MOAB, UTAH, UMTRA PROJECT SITE
U.S. DEPARTMENT OF ENERGY (DOE) OFFICE OF ENVIRONMENTAL MANAGEMENT IN GRAND JUNCTION

COMMENT FORM

MOAB PUBLIC HEARING – JANUARY 26, 2005

This form is provided as a means of capturing your questions and comments on the Draft *Environmental Impact Statement* (EIS). Comments on the Draft EIS will be accepted through February 18, 2005. You may also provide comments or suggestions concerning the content and format of the public hearings.

You may deposit the form in the comment box at the entrance of the meeting room. Comments, requests for further information, and requests for copies of the Draft EIS also may be directed by mail to Donald R. Metzler, Moab Federal Project Director, U.S. Department of Energy, 2597 B¾ Road, Grand Junction, Colorado 81503; by email to moabcomments@gjo.doe.gov; by telephone toll free at (800) 637-4575, or by fax at (970) 248-7636. Thank you for your participation.

Questions or comments concerning the Draft *Environmental Impact Statement*:
SEE ATTACHED SHEET

What would you consider to be your primary comment about the alternatives described in the EIS?

Comments/suggestions concerning the public hearings:

Name: JOHN C DOHRENWEND
Mailing Address: PO Box 141
City, State, Zip Code: TEASDALE, UT 84773
Phone number (optional): (435) 425-3118
Email Address (optional): dohrenwend@rkymtnhi.com

#47, p2
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After all of the studies, reports and pronouncements by the Atlas Minerals Corporation, the Nuclear Regulatory Commission, the Department of Energy and their advisors and consultants, what do we really know about the suitability of the Atlas mill site for long term storage of more than 10.5 million tons of hazardous waste? Well for one thing careful review and analysis of the Department of Energy's reports clearly show that the DOE has not developed an accurate picture of the geologic and hydrologic conditions at the mill site. The DOE's reports contain numerous flaws and failings, including the use of inaccurate and/or incomplete data, errors in logic, errors in data analysis and comparison, selective and/or inconsistent use of data, errors of omission, and the application of overly simplistic models and theories that are largely inappropriate to the specific geologic and hydrologic situation in Moab Valley. As a result, DOE's assessment of the potential hydrologic and geologic hazards at the Moab Mill site is overly simplistic and highly distorted.

Contrary to the DOE's assurances:
(1) An 80-year history documented by historic maps and aerial photographs clearly shows that the Colorado River is **not** migrating south and east away from the tailings pile. The high flood levees bordering the main channel have not shifted measurably, while the south and east bank of the active channel between these levees has moved north and is now 150 to 320 feet closer to the mill site. As a result the channel has also narrowed and deepened in its new position.
(2) Available subsurface data indicates that the valley fill is thickest and deepest beneath or slightly north of the present location of the river channel, that subsurface conditions directly beneath the tailings pile are much more complex than the highly simplistic picture presented by the DOE, and that differential subsidence of the valley floor directly beneath the tailings pile must be considered as a potential geologic hazard.
(3) The position of 'The Sloughs' in the Matheson Wetlands is a lowland marking the boundary between the Mill Creek-Pack Creek fan and the Colorado River fan. The Sloughs are **not** directly related to salt induced subsidence of the valley filling sediments.
(4) Courthouse Wash and Moab Wash have **not** caused the Colorado River channel to migrate away from the mill site. Rather, analysis and direct observation of high energy flows from Courthouse Wash clearly show that these floods have deposited sediments on the south side of the channel and therefore have actively contributed to the northward migration of the Colorado River.
(5) The geometry and position of ancient Colorado River gravels buried beneath the surface of Moab Valley clearly show that in the recent geologic past the Colorado River has in fact shifted back and forth across mill and tailings site.

Therefore, careful and consistent analysis of available data shows that the flood hazard potential at the Moab Mill site is not diminishing because of a fantasized southward and eastward migration of the Colorado River. Rather, the River has flowed across the site in the past and very possibly could return to that course in the future. Also because the River's inner channel has over the past 80 years shifted closer to the pile and has become narrower and deeper, the potential for deep channel scour and sudden channel shifting may have increased significantly.

JOHN C DOHRENWEND
PO BOX 141
TEASDALE, UT 84773
(435) 425-3118

Document #57 Webb, Chris City of Blanding, City Manager

#57

Comments From the City of Blanding
A Cooperating Agency
Represented by City Manager Chris Webb
1/27/05

• To leave the tailings capped in place does not eliminate the potential damage to the river or surrounding property.

• Nor does it stop the river from continuing its move toward the contaminated pile.

• It appears that leaving it in place would only be a temporary solution with little to no investment return trade-off.

• No alternative provides the same investment return that the slurry line option does, even if the IUC alternative is not the cheapest. Besides the economic impacts that benefit the community and the benefits of recycling and extracting the remaining minerals in the tailings will have, the project can tie directly into solving a culinary water shortage that has been plaguing San Juan County in consistent cycles, costing the federal government millions of dollars in drought mitigation over the years.

• Why are we proposing to create a new site when the IUC site is in place. This makes no sense.

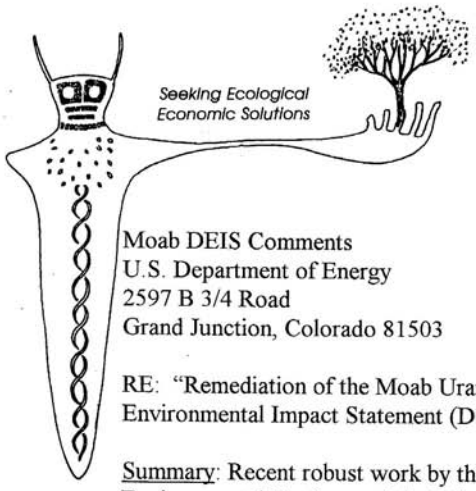
• We were not only shocked but dismayed at the lack of understanding regarding the issues of public safety. Emotions are high and misunderstanding too numerous to number.

• We have full confidence that the DOE has the ability to provide the necessary regulatory standards to ensure public safety and environmental compliance.

• Our education from Utah's Department of Environmental Quality gives us added confidence that the process can be handled safe both publicly and environmentally and that the associated risks are minimal if not non-existent.

• We encourage a full education program regarding the associated risks so that the public can come to the same conclusions.

Document #58 Christie, Richard Lance Association for the Tree of Life



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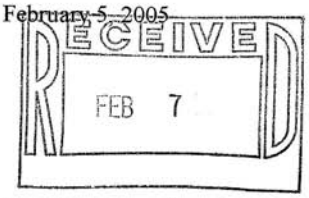
ATL
Association for the Tree of Life
Post Office Box 1366 • Moab, Utah 84532 • 435-259-5095

February 5, 2005



Moab DEIS Comments
U.S. Department of Energy
2597 B 3/4 Road
Grand Junction, Colorado 81503

RE: "Remediation of the Moab Uranium Mill Tailings, Grand and San Juan Counties, Utah, Draft Environmental Impact Statement (DOE/EIS-0355D)"

Summary: Recent robust work by the U.S. Geological Survey, State of Utah Department of Environmental Quality, and the University of Utah Department of Geology and Geophysics indicates that a number of the site characterization assumptions made in the DEIS are highly questionable. The 1000-year stability of an in-situ reclamation is far more uncertain than claimed in the DEIS. It is possible that an observer 1,000 years from now would be unable to differentiate the environmental impacts of the No Action and Capping-In-Place alternatives because of containment failure due to site instability.

It would be foolish false economy to spend $166 million on a capping-in-situ reclamation which has a substantial probability of failing. The difference between the DEIS's estimated costs of capping in-situ and moving the tailings to an alternative location ($329-464 million) would quickly disappear in the cost of a failed remediation: damages from toxic release and costs of addressing a cleanup and second remediation effort. We locals are cognizant of the fact that the neighboring Green River tailings were remediated twice and the Monticello tailings were remediated three times under the DOE Title I program. Like the Atlas tailings, the Green River and Monticello tailings were unlined and located on a porous basement structure in a drainage of the Colorado River basin. Both were initially capped in place; both were moved to a lined alternative location away from a drainage for their final remediation when previous efforts did not reduce leachate discharge to acceptable levels.

We think that the assumptions about the difference in groundwater remediation effort duration and costs if the tailings are left in place or if they are removed in the DEIS are incorrect. Oak Ridge Hydrological Laboratory opinion suggests that groundwater remediation with the tailings in place will have to continue far more than 80 years, while remediation efforts under tailings removal alternatives taking 8 years may require less than the 75 years stated in the DEIS. Although design and construction of the groundwater remediation system would be the same $10.75 million, at $906,000 operating cost per annum the cost of groundwater remediation might be considerably cheaper under the tailings removal alternatives and offset the higher cost of relocating the tailings for reclamation.

As detailed below, we have issues with several of the statements made in the DEIS about the

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alternative reclamation sites. In aggregate, we think the characteristics and contingies of use of the current tailings site and White Mesa Mill alternative site for remediation are worse, and the characteristics of the Klondike Flats and Crescent Junction sites are better, than the DEIS evaluation indicates.

If one takes both environmental cost-benefit and the degree of certainty of 1,000-year reclamation stability into account, the best alternative is moving the tailings to the Klondike Flats site by truck; second is moving the tailings to Crescent Junction by rail; third is rail transport to Klondike Flats; fourth is moving the tailings to Crescent Junction by truck; a distant fifth is moving the tailings to the White Mesa Mill by slurry line. Moving the tailings to White Mesa by truck and capping the tailings in place have such large costs and/or risks that we do not consider them acceptable by comparison to these five acceptable alternatives. In a worst case scenario the reclamation in situ alternative calculates as infinitely less cost-effective than the No Action alternative and should be dropped from consideration.

Existing Site Stability Issues

1. River Migration: The DOE's river migration report (a 19-page letter entitled "Migration Potential of the Colorado River Channel Adjacent to the Moab Project Site") suggests that the valley is subsiding more rapidly on the south side of the Colorado River, which would cause the river to migrate southeastward away from the tailings. There are three reasons to disbelieve this report:

1.A. Dr. John Dohrenwend discovered that the comparison of reported positions of the river channel by the DOE from 1944 to date were based on mis-registered overlays of aerial photographs. When historic maps and photographs are accurately registered, it is obvious that since 1924 the south bank of the Colorado has moved progressively north, west, and southwest away from Moab and towards the tailings site. From the U.S. 191 bridge to the tailings site, the south bank has moved north and northwest an average of 320 feet since 1944. Downstream from the tailings, the south bank has moved west and southwest an average of 175 feet. Neal Swisher has suggested some of these changes resulted from diking done by C & W Construction to divert water to the Atlas Mill pump intakes on the north side of the island from the channel on its south. This diking does not explain river bank migration from 1924 to the mid 1960's, which was in the same direction as that from the mid-1960's when diking was done to date.

1.B. At the January Atlas stakeholders meeting, the USGS presented new, robust data on past river migration to the north of its current bed.. The USGS data analysis is far more robust and current than that in the 19-page DOE report. The USGS scientists believe the data shows the river will migrate north, not south, in the future.

1.C. It appears that the fluid dynamics model used by the DOE migration report did not take into account the sediment load in the Colorado River. The capacity of surface water to carry suspended solids is the square of the water's velocity. Water flows faster at the outside of a river curve than at its inside radius. The south bank of the Colorado is on the inside radius of the river's curve opposite the tailings; the river turns from northwest to south almost 90 degrees from the US 191 river bridge to the Portal. The slower current near the south bank will cause greater

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deposition of silt there than on the north side. This deposition makes the channel shallower, creating friction which lowers water velocity. Because of the curve of the Colorado River in its crossing of the head of Spanish Valley, a collapsed salt diapir, it will force itself from the south towards the north because of the fluid dynamics of heavily silted water.

2. Catastrophic flooding: The DOE's geohydrological model for the site assumes the presence of a rock sill underneath the Colorado River at the Portal. In a 300,000 cfs 500-year flood event, the hypothetical rock sides and bottom of the Portal would act as a weir, damming the flow and creating a lake which would rise up around the lower part of the tailings but pose no erosional challenge to the cap because the water would be flowing at very low velocity. This model appears to be wrong because it is based on questionable assumptions.

The State of Utah drilled 150-foot deep cores along the south bank of the Colorado opposite the tailings pile. Kip Solomon and Phil Gardner of the University of Utah report that there is 15-18 feet of silty riverine alluvial deposits on the top. Below these, as deep as was drilled, there is 135 feet of flood-scour coarse gravels with no silty lenses or even smaller gravels: rocks from the size of a thumb up to the size of a human head are typical. Pieces of driftwood buried in this scour gravel were carbon-dated. At a depth of 24 feet, carboniferous materials dated at less than 100 years old. At 35 feet depth, the carboniferous material dated as 900 years old. The presence of uniform scour gravels to a depth of 150 feet indicates high-velocity river flow during flood events; exactly the opposite of the DOE's thesis that a stillwater lake would form during floods due to a choke of river flow at the Portal.

If a theory predicts the opposite of what is in fact observed when measurements are taken, the scientific method requires it be discarded. The weight of the evidence is that the Colorado River was scouring 35 feet deeper than the river bed today within the last 1,000 years, and that it is migrating northwards towards the tailings pile. This introduces the substantial possibility that the river would scour in a flood event, cutting northward and undermining the armor of the toe of the tailings impoundment, causing partial collapse of the cap and release of tailings, within the next 1,000 years.

In combination, we believe the river migration uncertainty and catastrophic flood uncertainties introduced by this new data disqualify the current tailings site as a feasible site for a disposal cell meeting regulatory requirements.

Groundwater Remediation Duration and Cost Issues

The DEIS posits $10.75 million for design and construction of the groundwater remediation infrastructure and $906,000 annually to operate it (S-9). Meeting the DOE target ground water remediation goal of 3 mg/L of ammonia in ground water would require 80 years under the on-site disposal alternative and for 75 years under any off-site disposal alternative (S-13). Since on-site remediation is estimated to take 7-10 years (S-8) and off-site disposal to take 8 years (S-9), the DOE must be assuming that the same lack of infiltration of new leachate into groundwater will

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occur at the point the tailings are capped in situ as would occur when they are completely removed from the site. This assumption has been present in past NRC and Atlas documents concerning the effect of capping the tailings in situ.

The Oak Ridge Hydrological Laboratory examined the leachate plume from the Atlas uranium tailings in 1997 at the request of the U.S. Fish and Wildlife Service and paid for by the Council on Environmental Quality. The NRC paid the Oak Ridge scientists to model the effects of the capping on discharge from the pile into the leachate plume. The report, "Tailings Pile Seepage Model: The Atlas Corporation Moab Mill, Moab, Utah" dated January 9, 1998, concluded that capping the pile would have no effect whatever on the discharge rate of leachate into the indefinite future. The reason was that the recharge rate of rainwater into the tailings through the clay cap would match the rate of infiltration of water through the upper tailings. In the words of the report, the "unsaturated hydrologic conductivity" of the fine tailings at the top of the pile are "sufficient to conduct the total volume of recharge through the pile." The laboratory found the moisture content of the tailings is 0.63 at the top of the pile, 0.75 at the bottom, and 0.71 overall. If moisture content was lowered to 0.57, there would still be 426 million drainable gallons of water in the tailings. Oak Ridge additionally found that the embodied water in the tailings was very tightly bound in the fine (-100 grit) tailings, or "slimes," was unlikely to enjoy significant recovery by the dewatering wells or "wicking," instead discharging for 270 years even if the top of the tailings pile was hermetically sealed so no additional water infiltrated. Finally, Oak Ridge flatly stated in the report that the capped pile would continue to violate groundwater standards with its leachate indefinitely - meaning for longer than the 1,000-year regulatory framework.

The DEIS does not address or refute these findings by the Oak Ridge hydrologists who did the groundwater hydrology work on the 24 DOE Title I uranium tailings reclamations and are arguably the standing experts on the subject. Absent substantial refutation based on sound new information, we conclude the estimate of 75 years for groundwater remediation if the tailings are removed is probably accurate, but an accurate estimate for how long groundwater remediation would have to continue at the site if the tailings were present is more on the order of 270 years (S-37 "more than 200") than 80 years. (This assumes alternative concentration limits would be employed; the DEIS analysis assumes the leachate would violate standard concentration limits for more than the 1,000-year regulatory framework.)

We also note that the State of Utah and Oak Ridge found that levels of molybdenum are very high (1000-2000 micrograms/liter range); selenium is high (95.3 ug/L) close to the pile - moving slowly in the alkaline environment; sulfate is present in concentrations exceeding 12,000 mg/L in the plume; and uranium, largely as uranyl carbonate ion was 2.68 and 6.76 mg/L in two test wells, and Oak Ridge stated that a level of 2.8 mg/L of uranium would persist in groundwater downgradient of the tailings "indefinitely." G.K. Eddlemon of Oak Ridge reported that "...both water quality data and measured redionuclide concentrations in fish indicated substantial enrichment in certain redionucides originating in the tailings pile [Polonium-210, Thorium-230, and Uranium-238; Po-210 was responsible for 80%]". There is no mention of these other contaminants as being of any significance biologically or otherwise. This is an important omission

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if we are considering the biological risk of cumulative impacts of continued tailings pile leaching over 270 years.

Finally, we note (S-45) uncertainty number 18, acknowledging there is probably an ammonia salt layer in the tailings. (The lower part of the tailings is the residuum of the Mi Vida pitchblende ores reduced by an alkaline process, the upper part is the residuum of Vanadium-type ores reduced by an acid process, making the Atlas tailings chemistry uniquely complex.) The DEIS assumes that this salt layer would be dissolved and reach groundwater no sooner than 1,100 years, which is beyond the regulatory life span of the disposal cell. This time scale is also based on the assumption that the cap will stop rainwater infiltration, while Oak Ridge found the cap will not do so. If Oak Ridge is right, this ammonia salt layer could reach groundwater within the regulatory life span of the disposal cell. This event would fail to meet regulatory requirements for reclamation.

This unusual chemical reduction circuit and feedstock history of the Atlas tailings also raises the uncertainty of the tailings characterization employed by the DOE (S-37). Tailings moisture content and driability, particle size distribution, and the concentrations of organic and inorganic contamination through the pile are likely to vary widely as a function of the ore being processed and the reduction circuits being used at the time a particular slurry of tailings was discharged into the tailings pile. Various former Atlas workers and suppliers report that the tailings impoundment was used for disposal of various hazardous wastes by local mining, construction, and drilling concerns as a courtesy by Atlas management. This variability in tailings pile content raises uncertainty and risk for both in-situ reclamation and any slurry line relocation alternative.

Klondike Flats Relocation Site Issues

1. Land Use: We believe the DEIS mis-characterizes the impacts of use of this 435-acre disposal cell site on grazing and cultural resources. The Klondike Flats site recommended by Grand County is a Mancos Shale badlands with a grade below the threshold for sheet erosion. Groundwater percolation rate measured by Geologist Bob Norman in the 1970's when evaluating the site for Potash evaporation pond use is 1/100th of an inch per year. His bores indicate the shale is about 900 feet thick. Static fossil groundwater underneath and in pockets in the shale is so saline and full of heavy metals that the tailings leachate has better water quality. Consequently there is almost no vegetation on the site. The few plants there are are highly salt-adapted and not palatable to either domestic livestock of wild game species. The area is therefore likely to lack any cultural sites because Native Americans had no more reason to go there to hunt than current citizens have to go there to hunt or graze livestock.

2. Recreational conflict: The Blue Hills road which leaves US 191 south of Canyonlands Field is used somewhat as a recreational access, primarily to the Ten Mile Canyon area to the northwest. Most recreation use is along the Mill Canyon road just to the south of Courthouse Wash. Mountain bicyclists use numerous camping areas along the Wash and ride to the south and west into Courthouse, Mill, Tusher, and Bartlett Canyons, the Disappointment Towers area, and

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around the Sevenmile Rim recreation area. Thus, most recreational traffic and camping use in the area is a couple of miles south of the roadway to the Klondike Flats disposal cell site. There is some potential for recreational use conflict if the Blue Hills Road itself was used as a truck haul route; alternative access to the Ten Mile Canyon complex exists through the Dubinky Well road.

3. Visual impact, latent cancer risk: The Klondike Flats site recommended by the county is, as the DEIS correctly states, the lowest in visual impact on the fewest viewers among the alternatives. We think that the stated latent cancer risk of 0.09 in 1000 years is high. We can see no reason that actual exposure of people to the tailings would be any greater than at the Crescent Junction site, which projects 0.07 latent cancer risk for a disposal cell there.

4. Borrow material demand: The Mancos Shale at the Klondike Flats meets disposal cell liner requirements if roller-compacted. Per 40 CFR 192 which specifies below-grade reclamation of tailings, the county has long proposed that the tailings be impounded at this site by excavating receiving cells in the shale, roller-compacting the bottom, filling the cell with tailings, then covering the tailings with the reserved excavated shale/clay, molding the thick cap to a grade below the threshold of sheet erosion. This reclamation design would not require any borrow material to be hauled into the site. With a cap below the grade for gully erosion, no rip-rap would be needed to stop such erosion. The roller-compacted Mancos Shale cap would have the same percolation characteristics as the proposed clay cap in the in situ reclamation alternative. Hauling in revegetation matrix soil from Floy Wash to this site to revegetate it would result in an incongrous patch of elevated vegetation in a sea of barren Mancos Shale badlands. There is no technical reason to keep the minimal amount of rainwater which would percolate through the flat cap out of the "bathtub" full of tailings which would have at least a .57 moisture content to begin with (per Oak Ridge).

Crescent Junction Relocation Site Issues

1. Transportation to site: The Crescent Junction site would require a shorter rail spur to access from existing rail lines than the Klondike Flats site would. It is a longer haul by truck than Klondike Flats. The stakeholders group dismissed the idea of hauling by rail to Klondike Flats because the cost of loading and unloading facilities for rail haul were higher than the cost of loading, unloading, and transport by truck to that site. Once tailings are loaded on a rail car, the cost per mile for transport is very small relative to truck transport primarily because of differences in fuel, labor, and depreciation. No analysis was done to see if the cost of rail transport the further distance to Crescent Junction balanced out the greater cost of truck transport to this more distant site. The advantages of rail transport in terms of traffic safety, road depreciation, and pubic exposure are such that, if rail transport to Crescent Junction would cost about as much overall as truck transport to Crescent Junction, the virtues of the Crescent Junction disposal cell site and the advantages of rail transport would make rail relocation to Crescent Junction the preferred alternative.

2. Land Use: We believe the DEIS exaggerates the impact of use of this 435-acre disposal cell

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site on grazing but is probably correct concerning cultural resources. The Mancos Shale badlands at Crescent Junction have an overlay of erosional outwash from the Book Cliffs and therefore supports more vegetation than the Klondike Flats badlands. Groundwater percolation rate of the deeper shale is probably 1/100th of an inch per year as at Klondike. The shale is believed to be over 1,000 feet thick, substantially more than at Klondike. Static fossil groundwater underneath and in pockets in the shale is probably so saline and full of heavy metals that the tailings leachate has better water quality. Because of proximity to the Book Cliffs and some browsable vegetation, the area is far more likely than Klondike to contain cultural resources because of Native American hunting use. The area is considered to have very poor grazing utility because of lack of palatable forage species for domestic livestock and lack of water.

3. Visual impact, latent cancer risk: We think the DEIS analysis of visual impact of reclamation in a disposal cell at Crescent Junction is correct, if an above-grade reclamation is used (S-19). As with Klondike flats above, we recommend consideration of a below-grade reclamation. We think that the stated latent cancer risk of 0.07 in 1000 years is correct for this site

4. Borrow material demand: The Mancos Shale at Crescent Junction probably meets disposal cell liner requirements if roller-compacted. Per 40 CFR 192 which specifies below-grade reclamation of tailings, the county has long proposed that the tailings be impounded at Mancos Shale sites by excavating receiving cells in the shale, roller-compacting the bottom, filling the cell with tailings, then covering the tailings with the reserved excavated shale/clay, molding the thick cap to a grade below the threshold of sheet erosion. This reclamation design might not require any borrow material to be hauled into the site. With a cap below the grade for gully erosion, no rip-rap would be needed to stop such erosion. The roller-compacted Mancos Shale cap would have the same percolation characteristics as the proposed clay cap in the in situ reclamation alternative. Hauling in revegetation matrix soil from Floy Wash to this site to revegetate it might not be necessary if enough Book Cliffs outwash soil is available and reserved for cover from the disposal cell site and immediate vicinity.

5. Use conflicts: There is currently no use of this area by mountain bikers or 4WD tourists. The road from Crescent Junction across the Christmas Hills to Floy Wash is used by stockmen, hunters, and others accessing Floy and some other canyons into the Book Cliffs. The major potential conflict, which the DEIS mentions, is with industrial uses in the industrially-zoned area of Grand County immediately to the east of the Crescent Junction site, particularly with already-approved activities: pipeline construction and building a pumping/offloading complex by Williams Petroleum Products. This needs to be carefully evaluated since there are no apparent use conflicts associated with the Klondike Flats site.

White Mesa Uranium Mill Relocation Site Issues

1. Cultural Resources: The DEIS correctly states that many cultural resource sites are likely to be impacted by both the disposal cell site at the White Mesa Mill and along the slurry pipeline route. The White Mesa Utes recently stated an estimated 120 National-Register-eligible sites would be

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obliterated.

2. Groundwater hazard: Unlike the Klondike Flats or Crescent Junction sites, which are in an impermeable basement geologic structure with no freshwater below at any distance, the White Mesa Mill disposal cell overlies an aquifer in the Burro Canyon Formation which is used for water by the Mill and discharges in springs and seeps used by wildlife. The Glen Canyon Group of sandstones are further down, and comprise the water supply for the White Mesa Ute community 4.5 miles southeast which is geologically and hydrologically downgradient from the millsite. The Mill uses artificial liners for its uranium tailings disposal cells. One has already leaked.

We also have the risk of contamination of various areas along the high-pressure slurry pipeline route in event of a leak or rupture. Kane Creek, Muleshoe Creek, West Coyote Creek, and Hatch Wash are among the larger drainages crossed by the pipeline route; the first two have perennial flow. An additional risk point is the booster station 30 miles south of Moab.

3. Truck transport: Combined with other site and cost disadvantages, the increase in average daily truck traffic through Moab of 127% if the tailings were trucked to White Mesa from Atlas makes this alternative totally unacceptable.

Respectfully submitted,

Richard Lance Christie

Richard Lance Christie, President, Board of Trustees
Chairman, Grand County Atlas Uranium Mill Tailings Reclamation Task Force, 1989-present
(Appointed 1989 by the Grand County Commission; re-appointed 1993 by the Grand County Council)

DOE/EIS-0355D comments, page 8

Document #63 Stewart, Robert F. Department of Interior

United States Department of the Interior

OFFICE OF THE SECRETARY
Office of Environmental Policy and Compliance
Denver Federal Center, Building 56, Room 1003
Post Office Box 25007 (D-108)
Denver, Colorado 80225-0007

TAKE PRIDE IN AMERICA

February 3, 2005

ER 04/486

Mr. Don Metzler
Moab Federal Project Director
U.S. Department of Energy
2597 B 3/4 Road
Grand Junction, CO 81503

Dear Mr. Metzler:

The U.S. Department of the Interior (DOI) has reviewed the Draft Environmental Impact Statement (DEIS) for Remediation of the Moab Uranium Mill Tailings, Grand and San Juan Counties, Utah.

Along with no action, the DEIS evaluates four options for location of the tailings: capping in place ("on-site disposal") or relocating to the Klondike Flats, Crescent Junction, or White Mesa Mill sites. It also analyzes three transportation modes for the relocation options (truck, rail, and slurry pipeline), and a groundwater remediation strategy which is common to all action alternatives.

The Department of Energy (DOE) has not yet selected a preferred alternative, which will be chosen based upon several considerations. Among the most important will be cooperating agency comments. We are providing the following comments for your consideration in selecting the preferred alternative and preparing the final Environmental Impact Statement.

General Comments

The National Park Service (NPS), U.S. Fish and Wildlife Service (FWS), and Bureau of Land Management (BLM) have been working with the DOE for several years as cooperating agencies under the National Environmental Policy Act to provide input on the scope of analysis, lands and resources of concern for this project, and technical information. All three DOI Bureaus appreciate the opportunity to be involved with you, other Federal and State agencies, and interested publics on this important project. During the scoping of the project, BLM helped in the identification of alternative sites and has initiated planning to recognize the sites for possible disposal to the DOE for relocation of the tailings.

Generally, the DEIS is thorough and well-written with ample information and helpful graphics. However, we note that information on fish and wildlife species includes qualifying language identifying the need for additional information. The site-specific information cited is largely based on Utah Division of Wildlife Resources (UDWR) mapped observational data. Although we believe the precision of site specific wildlife data is inadequate for detailed project planning, we believe it is adequate for public disclosure and decision-making in this EIS.

Our major concerns for fish and wildlife resources arise from the significant uncertainties related to the effectiveness of groundwater remediation and the risks resulting from leaving the tailings pile located on the Colorado River floodplain. Specific conclusions for Federally listed species will be addressed in the FWS Biological Opinion on this project.

Assessment of Alternatives

No Action Alternative

The Moab tailings site is located immediately across highway 191 from Arches National Park, on the banks of the Colorado River, and upstream from other national parks including Canyonlands and Glen Canyon. The tailings pile in its current location impacts visitors and resources of all these National Park units, as well as Grand County residents and recreational users of the Moab area and the Colorado River. The current tailings site produces various impacts and prevents various benefits that the site could potentially provide.

The No Action Alternative would also continue to cause mortality of Federally endangered fish species and adverse impacts to designated critical habitat. Other fish and wildlife resources in the vicinity and downstream would continue to be detrimentally impacted as contaminated groundwater would discharge indefinitely to the Colorado River and ammonia concentrations would continue to exceed protective levels. Additionally, the tailings pile would continue to be at risk of partial or catastrophic failure which would cause contamination of National Park System Units and aquatic and riparian habitats locally and for miles downstream.

On-Site Disposal Alternative

DOE has launched a commendable research effort to control the concentration of contaminants from reaching the Colorado River. We appreciate these efforts. However, as stated in the DEIS and discussed in more depth at a Stakeholders meeting in Moab on January 14, 2005, the On-Site Alternative is fraught with uncertainties that have implications for protection and conservation of DOI lands and resources. The uncertainties involve: (1) groundwater remediation; and (2) Colorado River access to the tailings pile.

Groundwater Remediation

1. Although there are model predictions and groundwater pumping trials, the DOE acknowledges that there remains considerable uncertainty about whether groundwater remediation can be achieved to protective levels for aquatic resources and in what timeframe.

2. Seepage from the tailings pile represents a long-term source of groundwater loading that could result in longer term active groundwater remediation and/or higher residual groundwater contamination remaining after the conclusion of the groundwater remediation time period.

3. According to the DEIS (p. 4-7) "limited data suggest that there may be significantly higher ammonia concentrations in the upper 10 feet of tailings related to a 3- to 6-inch salt layer," and "available information is insufficient to reliably estimate the inventory of soluble mineral salts in the tailings, estimate the time for the salts to be completely depleted, or predict the future geochemical transformations that may occur." Nevertheless, the DEIS estimates that these high ammonia concentrations would reach the ground water in approximately 1100 years (just outside the regulatory timeframe of 1000 years) and then continue to dissolve for 440 years. It suggests that seepage from the pile during dissolution could have concentrations of up to 18,000 mg/L of ammonia, compared to "initial" (apparently current) ammonia concentrations of 1100 mg/L. Given the "insufficient" information about ammonia salts in the tailings, it would seem that this 1100 year prediction could be uncertain enough that an occurrence in less than 1000 years, within the regulatory timeframe and thus relevant to decision-making, is within the realm of possibility. A discharge of 18,000 mg/L ammonia would seem to seriously hinder the ability to reach or maintain the target goal of 3 mg/L ammonia in ground water.

Although uncertainty number 1 is common to all action alternatives, uncertainty numbers 2 and 3 are unique to the On-Site Disposal Alternative.

There is preliminary evidence that contaminated groundwater can, and already is, reaching the Nature Conservany's Matheson Wetlands Preserve (Preserve) via a gravel layer under the Colorado River (Gardner and Solomon 2004). Potential contamination of the Preserve and disturbance caused by installation and operation of a groundwater remediation system, should that be necessary, are serious concerns. The Preserve provides unique and highly valuable fish and wildlife habitat that should not be put at risk of compromise. The On-Site Disposal Alternative increases the likelihood and duration of contamination from groundwater being a significant concern for the Preserve.

Finally, as reported in a Salt Lake Tribune article dated December 1, 2004, regarding capped mill tailings in Monticello, commitment to long-term management/maintenance of capped contaminated sites can be problematic. This is of special concern when such sites are located immediately adjacent to environmental resources of special concern, such as the Colorado River and the Preserve.

Colorado River Access to the Tailings Pile

As noted in the DEIS and corroborated in presentations by U.S. Geological Survey (USGS) and others at the Moab meeting, 100- and 500-year and probable maximum flood events could reach and partially inundate the disposal cell. For example, USGS estimated inundation would be up to 4 feet with a 100-year flood event and 25 feet at the probable maximum flood. It is not clear,

however, whether the DEIS model used to predict ground water remediation results (e.g. page 4-8) factors in the high likelihood that at least one 100-year flood would occur over the predicted 80-year timeframe for ground water remediation with the tailings pile capped in place. Nor is it clear whether the high likelihood of ten 100-year floods, with two of these also reaching 500-year magnitude, and the resulting effects of rewetting the tailings, is factored into predictions for ground and surface water over the course of the 1000-year regulatory time frame. Further, there is both recent and older geological evidence that the river has been near to or within the area presently occupied by the tailings pile. Although there is uncertainty about when, how often, and how severe a breach of the tailings pile could occur due to river movement, available evidence indicates that it is reasonable to expect that the river **will** reach and/or breach the tailings pile. This could result in the following impacts to fish and wildlife resources:

- Rewet contaminated materials which could enter groundwater and then the river.
- Mobilize contaminated surface materials which would most likely settle in other slower water habitats inhabited by fish and their food base.
- Spread contaminated materials into the Matheson Wetland Preserve, thus affecting nursery habitat for both native fish species and non-native sport fish species.
- Weaken the tailings pile, making it more vulnerable during the flood event and future events.

Various geologic data and engineering designs have been contemplated to reduce the risk of the river reaching the tailings pile. Discussions at the Moab meeting indicated that a great deal more information would be needed, and significant riprapping or hardening of the river channel would need to occur to reduce, but not eliminate, this uncertainty. The DEIS presented a preliminary proposal that included the following: a buried riprap diversion wall would be constructed; Moab Wash would be rechanneled; and unspecified stormwater management measures would be installed upstream. These and similar activities to "control" the river would eliminate habitat for endangered fish, change currents and sediment deposition patterns, and possibly affect the Preserve by increasing river movement and water force at the Preserve. Rechanneling Moab Wash and altering hydrology will affect riparian vegetation and sediment movement. These measures are detrimental to stream and river function and thus to aquatic and riparian habitats and the endangered fish and other wildlife that use them.

Effects of a Disposal Cell Failure

The DEIS does not adequately address the risks to human and ecological health from contaminated sediment accumulation in the Colorado River sediment delta at the inflow of Lake Powell after a disposal cell failure. We agree with the findings in this section that there is a risk of releasing additional contaminants into the Colorado River water and downstream sediments, but we find no data to support the section's conclusion that sediment laden with uranium, ammonia and radium-226 would be deposited in the river bottom and become stabilized. We also find not data to support the conclusion that the presence of uranium, ammonia and radium-226 in the water and sediments that eventually reach Lake Powell would have only a short-term

impact on human health, fish and wildlife resources or the environment. Our findings are that sediments in Lake Powell are relatively mobile and they get redeposited over both short-term and long-term cycles, depending on volume of inflow and other variables. Thus we question the conclusion in this section that toxic effects of a disposal cell failure would be negligible or short term. We suggest these conclusions should be reexamined in the FEIS.

The "camping" scenario is somewhat unclear, but seems to underestimate the camping use and other recreational use that occurs on the Colorado River and shores within a few miles downstream of the tailings pile. If the "two overnight camping events per year" in the scenario is meant to describe use by any single person, note that there are several popular BLM campsites along the downstream river shores, and that it is not unusual for individual visitors to camp at these sites well in excess of two days per year. Additionally, river users often spend more than two days per year boating, swimming and camping on the Colorado and shores between the tailings pile and Lake Powell. Commercial river guides may spend 75 days and nights or more per year on this section of the river. Boating use on the Colorado in Canyonlands National Park, which generally starts at various locations near or downstream from the tailings pile, is about 12,000 to 13,000 people per year, or over 31,000 visitor-use days per year. These users could be exposed to contaminants from a disposal cell failure, including radium-226 in sediments that would settle along river shores, which the DEIS predicts would be at levels "well above the 40 CFR 192 cleanup standards" and "could be of concern."

It is stated that "very small amounts of contamination would accumulate in the main river channel," but this does not consider the sediment delta, where much of the sediment would eventually accumulate. Later in the DEIS, it is stated that "much of the radium-226 would be expected to settle out in Lake Powell," reducing the risk downstream. However, risks associated with the settling in Lake Powell are not addressed. The estimated concentrations of uranium and radium in sediments that may settle out is probably sufficient to estimate contamination in the delta, but the residential scenario is inappropriate and the camping scenario is inadequate to characterize the risks. Visitors to Lake Powell generally camp on the shores of the lake. The level of Lake Powell fluctuates considerably, and visitor exposure to sediments at lower water levels is very likely. Remobilization of contaminated sediments by wind during low lake levels is also a concern. The average stay is over four days; a two day exposure, as considered in the camping scenario, is not realistic. Risk factors may also be exacerbated by the fact that Glen Canyon NRA has the highest rate of return visitors in the National Park Service. Many of the campers use Lake Powell as a source of drinking water. Risks to users of Lake Powell would also exist from bioaccumulation of contaminants in game fish. Additionally, at normal water levels, Hite Marina draws drinking water from the lake at a location directly over the sediment delta.

We also suggest that the FEIS expand its action area or at least the cumulative impact section to recognize the impact of a disposal cell failure on downstream drinking water supplies. None of the municipal water districts that currently obtain water from the Colorado River downstream from the tailings pile have the technology or funds available to remove the levels of uranium, or other contaminants from their drinking water supplies in the event of a catastrophic failure.

Visual Resources

The narrative seems to underestimate the visibility of the disposal cell. It would be visible to virtually all, rather than "a limited number of," visitors to Arches National Park, from Highway 191 and the Park headquarters area, and from the switchbacks and the Moab Fault Overlook on the park entrance road above the Moab Valley. It would also be visible from a number of residences in the northwest part of Moab, as well as from hotels and other visitor destinations along highway 191 on the north side of Moab. We concur that the short-term visual impacts from this alternative would be "strong," but we question whether the long-term impacts would be reduced to "moderate" and whether vegetation would establish on the disposal cell to the extent simulated in figure 4-6. We concur that lights for night-time operation at the Moab site or at any of the alternative disposal sites should be shielded.

Uncertainties

Discussions at the recent Moab meeting indicate that it would take a great deal of additional time, investigation, and trials to reduce the uncertainties associated with the On-Site Alternative. On the other hand, these uncertainties can be avoided by moving the tailings pile offsite. Thus, although the On-Site Disposal Alternative has the least overall short-term surface acreage impacts, based on DOE's forthright recognition of the aforementioned uncertainties and the other concerns listed above, we believe this alternative has significant impacts to DOI lands and resources that could be avoided by choosing an offsite disposal alternative. Further, in the long-term, these resources *could* be improved by choosing an offsite alternative *if* the restored bottomlands were protected from development.

Offsite Alternatives

White Mesa Mill Offsite Alternative

This site is located near perennial streams and wetlands that could be at risk from tailings disposal either through groundwater connection or loss of integrity of the stored tailings. The slurry pipeline would need to cross the Colorado River, the Preserve, 11 perennial streams, and at least 21 intermittent drainages. Both construction of crossings and potential leakage put these important aquatic and riparian habitats at risk. Trucking the tailings would result in greatly increased potential for wildlife mortality for 85 miles. These aquatic and transportation-related wildlife impacts would be greatly reduced under the other two offsite alternatives. We therefore recommend that the White Mesa Mill Offsite Alternative not be given further consideration.

Crescent Junction Offsite Alternative

The primary differences between the Crescent Junction Offsite Alternative and the Klondike Flats Offsite Alternative are: (1) Crescent Junction is subject to extreme surface water flooding potential; and (2) Crescent Junction is 12 miles farther from Moab by road, increasing the potential for wildlife mortality. These differences result in greater potential impacts to wildlife resources with the Crescent Junction Offsite Alternative than with the Klondike Flats Offsite Alternative.

Klondike Flats Offsite Alternative

As previously stated, this site is similar to the Crescent Junction site. However, there is less flood risk, and the site is closer to Moab. In addition, this site is near the existing airport and landfill, therefore disturbance has already displaced resident wildlife. Considering the soils at both sites, we believe the Klondike Flats site has the best potential (although still poor) for successful revegetation to native species. The Crescent Junction site includes Mancos shale soils and currently suffers from a cheatgrass infestation, making revegetation more problematic.

Although this and the other offsite disposal alternatives add 400 to 450 acres of temporary and permanent disturbance to surface soils and vegetation, we believe that the effects of the loss or reduced quality of these habitats is minor compared to the residual impacts and future risks to floodplain habitat associated with the onsite alternative.

We understand that the Klondike Flats Alternative may include offloading the tailings from the railroad to trucks in order to reach the site. However, extending the rail line is an option. We strongly encourage the latter, as additional handling of the tailings increases the risk of environmental contamination.

Trucking the tailings has the most potential to impact wildlife resources due to direct mortality, interference with movement from one side of the highway to the other (disruption of movement corridors and habitat fragmentation), and noise. The slurry pipeline avoids these impacts, although it would result in some depletion of water from the Colorado River. Slurried tailings may also result in localized surface or groundwater contamination. The railroad is not expected to cause significant wildlife mortality or obstruct wildlife movement; however noise would still be a consideration. Overall, we recommend avoiding the trucking alternative due to its higher potential for detrimental impacts to wildlife.

Specific Comments

Section 2.1.3 Construction and Activities at Borrow Areas: Since initiation of the DEIS project and preliminary discussions with BLM staff in the Moab Field Office, a public health and safety issue with activities in the Crescent Wash/Ten Mile drainages has been identified. Flooding and severe dust storms commonly occur along the northern section of SR-191 and I-70 from Crescent Junction to near the State line. Storms, more prevalent during the spring and summer months, have resulted in public health and safety concerns associated with highway travel. There have been vehicle accidents and injuries during these events. The borrow areas referred to as Courthouse Syncline and Tenmile (as shown on Figure 2-8, Volume I of the DEIS) are of particular concern regarding this issue.

BLM and the U.S. Geologic Survey (USGS) have been collecting information and conducting research in this area to determine locations providing dust sources and mechanisms for dust movement. Preliminary information suggests the most severe dust storms are occurring from alluvial floodplains on Mancos derived soils in the Crescent, Thompson and Sagers Wash areas. Dust movement from these areas appears to be correlated with disturbance of these soil types,

particularly west and southwest of SR-191 in Crescent Wash. Preliminary information suggests these storms are more severe in this area due to:

- The prevailing wind direction from the southwest aligning with the topography of the greater Ten Mile Wash area as it grades into the Crescent Wash,
- The presence of sand size particles in dunes at the head of Ten Mile Wash, providing a source for surface "saltation" particles,
- Abundance of fine-grained material from the Mancos shale and the alluvial sediments, directly adjacent to and downwind from upper Ten Mile Wash, providing a source for the airborne dust particles in this drainage, and
- The flatness of the overall drainage system, which allows winds and saltation particles to move more easily along the surface.

This system is further affected by the ongoing drought as vegetation is removed from the landscape, resulting in minimal natural trapping mechanisms for the entrained dust particles.

While DOE could and would require strict BMP's to limit the quantity of dust that could come from borrow and other project areas during operations, it is the overall disturbance in these drainages from all the ancillary operations (even those activities on established roads), that would be associated with borrow or other operations over a sustained period of time that is of concern for the health and safety of the traveling public along SR-191 and I-70.

Alternatives to locating project components in the Crescent Wash/Ten Mile drainages should be considered.

Please contact the BLM Moab Field office if further information is required.

Paleontological Resources: All project areas should be analyzed for potential impacts to protected paleontological resources. Even though the geology sections of the EIS identify geologic formations in the project impact areas that have produced and have the potential to produce significant paleontological resources, the potential impacts to these resources have not been analyzed.

A baseline inventory of paleontological resources in the impact areas is needed to support an analysis of impacts. The inventory should be completed by a professional paleontologist licensed in the state of Utah. A list of paleontologists licensed in the state of Utah can be obtained from the BLM State Office.

Section 2.3.2.1 Ground Water Remediation Options (pg 2-100): We believe that evaporation ponds, identified as a primary treatment consideration for the final groundwater remediation plan, have a high probability of being an attractive hazard to wildlife, especially because of their proximity to the Colorado River and the Preserve which are high use areas for wildlife. It will be important to incorporate measures to prevent wildlife access to the evaporation ponds.

Conclusions

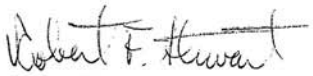
The DEIS makes an effort to acknowledge and discuss various uncertainties involved in predicting impacts and costs of the various alternatives, including the possibility of river channel migration into the pile, catastrophic flooding, and the appropriate surface water quality standards and their effect on groundwater remediation time, and associated costs, with the pile left in place. There are various other uncertainties that could also come into play over the 80 to 1000+ year regulatory timeframe for management of the tailings, such as the possibility of increased upstream withdrawals from the Colorado River and consequent lower flows, and reduction of endangered fish habitat and water available for dilution of pollutants. The DEIS acknowledges that the tailings pile in its current location would be a continuing source of contamination that would maintain contaminant concentrations at levels above background concentrations in the ground water and potentially require institutional controls at the site in perpetuity to protect human health.

The current Moab tailings pile and mill site is in a prime location: on the banks of the Colorado River, next to a busy highway at the gateway to Moab, across the highway from Arches and across the river from a key Nature Conservancy wetland preserve. This location has higher and better uses than to be left contaminated and unavailable to any beneficial use in perpetuity. Removal of the tailings from this site would eliminate hazards and create benefits for wildlife, such as endangered fish and southwest willow flycatcher, as well as for humans.

We would suggest that the above factors, the uncertainties, the continuing risk in perpetuity, and the high value of the Moab site for other uses and benefits, are major drawbacks to the alternative of capping the tailings pile in its current location. The prudent alternative is clearly to move the tailings pile to a safer location. We suggest that the Klondike Flats site is the best location for the tailings, with the Crescent Junction site a second choice. Because of the infrastructure already in place and the separation from a highly traveled highway, rail transportation appears to be the best alternative for transportation of the tailings.

The Department appreciates the opportunity to provide these comments and expects NPS, FWS, and BLM to continue to work with DOE to plan and implement this project in a manner that avoids, to the greatest extent possible, detrimental impacts to DOI lands and resources. For further information please contact those Bureau staff with whom you have been working during preparation of the DEIS.

Sincerely,



Robert F. Stewart
Regional Environmental Officer

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Appearances

DONALD R. METZLER
PROGRAM MANAGER
U.S. DEPARTMENT OF ENERGY
2597 3/4 Road
Grand Junction, Colorado 81503

JOEL BERWICK

TOBY WRIGHT

DEBBIE PETERSON

WENDEE RYAN

VIVIAN BOWIE

The Draft Environmental Impact Statement (DEIS) Public Hearing held at the Education Building, White Mesa Ute Reservation, White Mesa, Utah, on the 27th day of January, 2005, at 10:00 o'clock a.m., before Joseph J. Rusk, Registered Professional Reporter and Notary Public at Large.

* * *

Document #65 Heart, Manuel Ute Mountain Ute Tribe

MS. RYAN: Manuel Heart.

MR. HEART: Good morning, my name is Manuel Heart, I am the vice-chairman of the Ute Tribe.

We have had some of these meetings up in Moab and also here, and up at the mill, and I am glad, Vivian, from the Department of DOE, I am glad you are here. Some of our meetings in the past we have asked representation from the Washington D.C. department, you guys that are here work under the department of the DOE or are affiliated to it in some way or another.

Now, the culture guy down here at the end who thinks he is a culture expert on a lot of things, but culturally Native Americans are experts on cultural stuff themselves. These guys are just learning, and they just know the very basics of cultural stuff. I want to make that very clear.

Also I want to make clear a government-to-government relationship with Washington, D.C. in a federally recognized tribe, the sovereignty that we have, it has to be put on record that we are a sovereign nation and we have to have this government-to-government relationship.

Now, this gentleman talked about a few items here. He mentioned one thing, something about a big pile that it comes down to the White Mesa mill, and just keep in mind, this is only a draft,

correct. And only looking at possibly three sites, Klondike Flats, Crescent Junction, the White Mesa mill. And what comes into play is money.

Right now we are in the middle of a war that the United States Government is unable to put enough money to put a slurry down here. If they do, there comes water, water rights out of the Colorado, how are you going to push that stuff if you don't have water rights behind that to push that tailings down here? So you have got issues of water rights out of the Colorado, and there is none, there is no extra water anywhere to push that slurry. The cost of bringing it down here is the most, 75 million, if the United States Government wants to do that. There are places out there at Klondike Flats which will have the least impact, the least impact on everything. There is already a railroad right there, transportation is there, a short distance, we are talking about a community, there was one community that was possibly a site, which was Green River, and they said population base, our population is growing here so we want to take that off one of our sites.

We also here have a population base that is growing also, and that has impact to our future.

So I really want to make this clear. Transportation, they talked about trucking also. Sometimes in the past we have had some trucking problems coming back and forth from tailings falling out of the back and not really properly strapped down. I have had community members complaining that they turn into the mill up here and there are some tailings on the road. Who is going to be accountable for things like that?

Looking at our future impact, we have our groundwater resource for this community underneath this mill up here. We have probably three cells up here, and in the future, the extent to put in more cells and more tailings in here, impact where the tailings are going to be coming from. Currently the State of Utah is opposing the nuclear waste proposal up in the northwest. Once you open that up, and we have opened this mill down here to more tailings coming in here, the impacts it will have on the future from outside of the state, not only uranium tailings, but nuclear waste, the impacts that it will have for the State of Utah. We need not look at a residue for the State of Utah, but the health impacts it will have, environmental impacts it will have, all of these come into play, Clean Water Act, air quality, your major fishing, yes, fish are in there, but we also as humans have to live on this land, too.

We have been in litigation for probably the last 30 to 50 years in the water rights settlement over in the Durango area, over those projects, and the fish was more important than the humans. The fish was very important to the Endangered Species Act. They were more important than the humans, and that is what they were trying to do in that project over there, and not have that project go through.

Things come up like this from environmentalists.

So I need to look out long-term as a Tribal official, for my Tribal members here, and the impacts it will have on my kids, my grandkids, their grandkids. We are a growing population, we have cultural sites here, probably over 120 cultural sites.

I have people I would like to introduce here. Bill Johnson, from the Legal Department; Tom Reichart, Environmental Department; Terry Knight, Cultural; Carl Knight, Land Commissioner. We have Elaine, she was here; council members; and our community members back there from

the White Mesa community. All these people who I am advocating for today, because this thing is not good for this community. We need to look at it, and talk right now about what is a good site. We propose the Klondike Flats, Crescent Junction areas as the site for the tailings. To bring it down here, long-term, is not feasible for us, it is for the United States Government, Department of Energy, it is just not feasible. So we recommend them two other sites.

As these guys come up and do their testimony and put it on record, what they feel also, that is up to them, the White Mesa Ute Tribe.

That is all.

Document #66 Knight, Terry Ute Mountain Ute Tribe

MS. RYAN: Terry Knight.

MR. KNIGHT: Good morning. I just want to make a few follow-up comments to what Manuel was talking about, and I just can't get over this idea where initially at some of the other meetings where we were at, like some of the other towns like Green River. Green River was taken off the list of places to take this uranium tailings to, because of the population there, or whatever. They had criteria of why they couldn't take it there, and we were told that the criteria for White Mesa mirrored the criteria that qualified Green River to take it off the list. So we said, why wasn't White Mesa taken off. So from that time on, I have had a problem with this wondering who and why keeps pushing this, the option to bring it down to White Mesa. Yes, we have a mill, you know, here, and that has been taken care of, but people are saying, no. And we don't understand, I don't understand which part of no that the State of Utah, the Department of Energy, and IUC don't understand. Maybe if I talked Ute to them maybe they might understand that, or Spanish or something.

But one thing that we do understand is dollars. And so that is where the amount of money that is going to be given to the State of Utah for monitoring whatever we are talking about, contracts and other things, and it is a large sum of money that would either go to the county or someone in the state there. And when you look at it, to endangering a number of people, it is just a few dollars, maybe millions and millions of dollars, but it is just a few for how long and for what, you know, because this is going to have a lasting effect. Just like our body—we cut ourself, it will heal, but it is going to leave a scar. How long does it take for uranium to dissolve, how many thousands of years? About 5 million years, so our people aren't going to be around that long, and just looking at it in that sense, you know, there is some horse-trading, back-room trading, whatever, and I just don't understand where people that are supporting within the state administration, within the Department of Energy, and of course ICU supporting, they are going to make money on it. Why would they keep pushing a bad situation? You know, this kind of really pisses our people off, and they think we are stupid. Like Manuel said, we were not as -- we don't rate as high as the fish that are going to be extinct or anything, you know. It is just another example of what non-Indian mentality is, of Indian people. And they are just people, you remember that.

So just, you know, just say, well, what I read in some of the history books when the Mormons came and wanted to go down there and clear that area, and they didn't mean clear it of the vegetation, that meant wipe the Indians off, get them off of there. It kind of makes me think

about those things, I wonder why. Yes, there is money involved, but is it that important? If it is, then move it over to Klondike. You know, we said, yeah, that is our part of our migration routes that the Ute people used. We are still going to be giving up something.

But the other thing that bothers me, if you start digging around there, maybe the reason they don't want to move it over to Klondike Flats is that when I go through there, there is a lot of people on the mountain bikes and horse riding, and maybe those people are, you know, recreational people, whatever, maybe they are, and they don't want to give that up, but they sure want to stick it down our throat.

But then again, the Ute people said that is part of our migration area. So we would be willing to, you know, let you have that.

And the other thing is the use of water. Manuel says, there is no water to be allocated anywhere in the west, and among the water allocated it is already over-allocated. Where are you going to get the water that is on the white man sites, but on the Indian site you can't do that with the water. After you get it down there, what are you going to do with it, wait 5 million years? No, that is definitely a no-no, and you are not supposed to do that with the water. Water is our lifeblood. We can't use it just to use it as a slurry. And, you know, this is one of the main things that we have. And so, like, and the costs, who is going to pay for it? You know, we are talking about the war and everything. But there is nowhere anywhere, within these meetings that we had, that I have attended, is there any kind of guarantee that would assure anybody, any person that this is safe and it is going to be safe, you know, and if something happens within this transit line, you people can always get up and go, you know, you came from Europe anyway, and you can go someplace else, but we can't. We live here, we are part of this, and we don't want this thing to happen. Like I said, we want to stay here, we want to live here. And so, you know, I hope you take this into account, think about it, what if it was in your back yard, what would you say? This whole area, this whole earth is our back yard, so we have that sentiment on it. So think about it in those personal terms. What would you do if they were going to do this in your back yard and you have your cemetery and your people? I am not even touching on the cultural stuff, and all that, that is going to take place. But if it does, then we have got numerous construction and resources, if it does, you are not going to do it without us cashing in on it, too, either way. That is all.

MR. METZLER: Thank you, Terry, a good strong message.

Document #67 Knight, Carl Ute Mountain Ute Tribe

MS. RYAN: Carl Knight.

MR. KNIGHT: Good morning, I think we are learning something here from the things that they use for destroying people. My name is Carl Knight, and I am the Ute Mountain Tribe Land Commissioner. I am sorry, I kind of forgot how the procedure goes, so, but anyway, you know, what I was saying about these things, you know, when you look at it within an individual's mind, you know what you want, you know what the road of life is for yourself, and you understand that. And when you are an individual, regardless of who you are, and where you come from, you do have that right as a person, and you look at it in any category, a person has a right. I have a right, and the rest of us out there listening, you do have that right also. And when it comes to maybe violating that right that you have, as an individual, a group, organization, agency, and

when it comes to Indian Tribes, those Indian Tribes are a little bit different, and I don't think there is very many, not very many people that understand that. So when it comes to them they are not Tribes, they are nations, and that nation, that word nation, carries a lot of weight, and to hear one resource that I am talking about, get ahold of that law of nations, and they will explain it to you exactly what it is. And what I see is within that law of nations, the Ute Nation, if this does not go like the Tribe wants it, and then it is a violation, a violation of that law of nations, because they do have that right. Simply, the Tribe itself, is known as sane. This is dangerous, this is not for us, in a polite way of saying, please, don't bestow White Mesa with this uranium. Take it someplace else.

And that is why we have been at this for quite some time. And there are two sites that we are talking about up north in that kind of a remote area up there. If you are a normal person, you will say, that hardly anybody that lives there, there is no danger to human life. But here, in White Mesa when you look at it, there are people here. And it would be kind of a thing within a normal person's mind, by looking at the situation, to say, well, they have got some people down around Blanding, White Mesa, wouldn't it be better if we took it out there where there is hardly anybody around.

On the other hand, uranium, I have done a little research over the stuff, and when you come to meetings like this, the good parts, the good part is to want what people focus on. But let me remind you, there is the bad part to that thing, too. The dangerous part of it, what it can do to a person, to an animal, to a plant life, it is very dangerous, but, you know, people don't talk about those things. And I am saying that within that line, what government agencies do, they don't just do things, they have a plan, they have a plan in place. So I am saying I think there is a plan for this, for this situation that we are talking about. Some people call it the preplan analysis. And other times the public have been used because that is not really -- that is not really how it is going to be, and they call it a public meeting, scoping meetings. But the plan that I am talking about is underneath all of this, and this is the way it is going to be, regardless of how many people oppose it, are offended, and I know what it is.

And I am saying for the people that is here, these people have that preplan analysis, and these, too, the Ute Mountain Tribe would like to have a copy of it, because I have seen it, I have seen it in different situations, to where there is always a plan. These people don't do things just to be doing things. That is how it is.

So I am saying along with my Tribal members here, that I think that with the benefit that people within the Blanding area, the White Mesa site area, and the people to the south toward the San Juan River, because if that uranium, if it ever gets away from these people, and then you have got the people to the south on that same drainage, and, you know, if it got worse, it could end up down in Mexico, and take up everything, contaminate everything to where that water flows. Even Las Vegas.

So I am saying this is not just a little thing. I think it needs to have a good look at things because it involves human lives, the way of life, because we are going to be here, we are not going to go nowhere. But if you want to know that it is going to make it to where you want to make the money off of this, on the Ute site, I am going to get my part, my pay, and then I am going to move on out, and go find something else to do.

But I am glad in a way that I was heard, and there is a person here from D.C. It is kind of nice to have somebody from out there to come out here, and kind of know about the situation, of what is going on here. Because from what little I know, some of those people back there have never been here in the west. And I always said, can you make a decision with an issue that is going on in the west, how can you make that decision if you have never been there? That is what runs through my mind. But if you have been here and look at the grounds here, and then go back to the place where you come from, and look at it, and say, hey, this was a different experience. Now, that is what it is. I think we need to all understand and have that respect for each other as human people, not as I am better than they are, or I carry more weight, or I am the president of ICU, or whatever, you know, it don't work that way.

But I have seen it, and they call it kind of more like a big shot or something like that, you know.

But, you know, I am saying that something like this, you know, I kind of understand where the back-room deal comes in, too, and I have seen this, too, and I could pick it up quick, because I know what it is.

So, you know, there is a lot of those that go on, too. And when that happens, it is benefiting just one group, or benefiting an individual, and that doesn't go very good, because what it does, it leaves a paper trail, and somewhere along the way, it is going to catch up with you. And it is not a very pretty sight, in that back-room dealing, it is a separate deal. Like the old saying, there is no honor among thieves. But I am saying keep it in the back of your mind that the people on White Mesa and behind it, we don't need a dangerous type of a chemical here, take it someplace else, and leave it there.

And I think the Ute people here are going to be here for a long, long, time, because it is not pretty, this uranium is not pretty. It deforms kids that is born, and this type of a thing, that is what we don't see when we have meetings like this, things like that, to me, to me it is dangerous. That is what I want to say.

Thank you all.

MR. METZLER: Thank you, Carl.

Document #68 Redhouse, John Diné CARE

MS. RYAN: John Redhouse.

MR. REDHOUSE: I will be brief. My name is John Redhouse, I am Navajo and Ute, and I am here representing the Diné CARE citizens against ruining our environment, and our organizational position is that we are opposed to the selection of the White Mesa alternative as the preferred alternative for the reasons that are being stated today, that if this is selected and implemented it will result in environmental and cultural ruination, the kind of destruction that cannot be mitigated, but it can be avoided. So that is why we are participating in this public hearing process, in the EIS process. We also participated in the scoping meetings of two years ago. We also submitted written comments, and we will submit written comments on the Draft EIS by the February 18th deadline.

Also the next-year coordinator Allen Frazier will also be participating in the public hearings in Blanding this evening, and will amplify on our organizational position.

We are also opposed to the continuation of the White Mesa mill for reprocessing, disposal and milling purposes. Milling I know is being considered, and will result in the expansion of the White Mesa facility. Uranium mining is beginning to pick up on the south rim and north rims of the Grand Canyon, and also other parts of the Colorado Plateau. This will result in destruction, environmental and cultural destruction of Indian Tribes and Indian Nations here in the Four Corners of the Southwest, of the American Southwest. The Havasupai are the keepers of the Grand Canyon as are the Hualapai people. The trucking of the uranium ore from these mills, that IUC does have interest in, on the north and south rims of the Grand Canyon will also affect the Navajo, Hopi and the Southern Paiute Band, living in the Tuba City area.

And this uranium from the exploration of the mining, the milling, the disposal, it is like a cancer on the earth, and it must be stopped, it must be kept in the ground. And that is and will always be the organizational position of the Diné Care.

Thank you.

MR. METZLER: Thank you.

Document #69 Badback, Yolanda Individual

MS. RYAN: Yolanda Badback.

MS. BADBACK: My name is Yolanda Badback, I am one of the concerned residents here. I have got a paper here that I would look to present to the DOE here, it is a complaint that I want to give you guys, because you guys -- I have been attending meetings and you guys have not been hearing the words that we have been saying all the times at the meetings.

I have been attending meetings in Salt Lake, at the Radon Control Board there in which I keep giving papers out to them telling them what my concerns were and how I felt about having you guys bringing it down to the mill here. As for being a resident here I don't know of any other community members here that was aware of this meeting here, I haven't seen no fliers put out or anything. I don't know if the people here knew about this meeting or anything. But I got a call and they told me that they are holding a meeting here, so I took the time off of work just to attend this meeting, so I am here today, and to tell you my thoughts. After being a community member here, I do not like that the EIS does not have a translator to be before the community here since we have the elderlys here. We have a few elderlys that do not understand what is going on, even though you try to explain it to them and some of them, they say, they tell you a long story and they say, you know, where we come out and tell the public but there is nobody that will translate it. So I don't know if any of them are around here or anything, and I just present this paper.

That is all I have got to say.

MR. METZLER: Thank you.

MR. METZLER: We will make this paper a part of the record.

Document #70 Whiskers, Thelma Individual

MS. RYAN: Next is Thelma Whiskers.

MS. WHISKERS: Good morning, good to see you people here, and I also am glad the councilmen are here.

And my name is Thelma Whiskers, and I am half Navajo and I am half Ute, and I am one of the elderlys here, and I talk Navajo and I talk Ute and I talk English real good, for them to understand, when I talk to them.

So, way back, me and my families, we have been fighting against this White Mesa mill for years and years. So finally, we invite the councilmen for them to know that when we are going to have the meeting. We have been going to the board meetings in Salt Lake, and I have been going to meetings in South Dakota, I have been to meetings in Idaho, Farmington, Shiprock, and I have got a lot of good friends, they are behind me, and here for myself, here -- I am not here myself, I am here with a lot of people are behind me. And I am so happy, and I work with my elderlys for them to understand, and the White Mesa mill is dangerous, and we don't want it to be close to our Reservation. We want it to be out of here, put it somewhere else.

I explain everything to them, and my people here, I care for them, especially the little kids. I really care for them. I am not on a board, I am not on anything. I care for my people, I love them, I explain everything to them, it is dangerous. This thing I am fighting against it. If I wasn't fighting against it this place will be going, it will be going.

So I have been going to Salt Lake to board meetings and here. They are treating me like I am a little puppy, I was a little puppy, they didn't listen to me. I was complaining like this, same old words, I have been complaining to this.

So me and my daughter and my grandkids, we have been going to the meetings. So I got my families together and I said, you know what, we have got to do something, let's tell our councilmen, let's all tell our representatives for them to help us, help us, be with us, it wouldn't work. We are the only ones here in front of the radiation board. They are treating us like little dogs. They don't recognize our Reservation, they don't, they look over us. That is what they have been doing. They now -- so, I work with the person, we all got together, and we work together, and I am so happy that I am fighting against this. I don't want it to be close to our Reservation. No, that is dangerous, we don't want it.

Since they closed that place, it is nice and clear, nice air every time when we go out, every morning. Before that, no, when we go out we used to smell that pollution. I wish you people would understand. I wish you would listen to us people here, from the Ute, Ute Tribe people here. I am, I am one of the elderlys, that is the way I feel because I have got a lot of grandkids, I care for the young ones, and here my nephew, he is suffering from the radiation, he is suffering. If it wasn't for me, yeah, it still would be going. If I didn't stand like this in front of you people, if I say, oh, it is none of my business, let it go. I don't even work for the money, I am not asking for the money, no, I am doing it on my own. I am doing it for my people here on this Reservation

here. I get in front of the Radiation Board for years, years, years, and hear the people, and they started hearing my name, Thelma Whiskers, she is alone out there, fighting against the white nation. They are treating her like a little dog.

So all the people from the south I met, they are my friends, they are helping me, they are behind me. Now I am really happy to see the councilmen are here, they are behind me now. I am real happy for them to help me. I am glad that they are here, they go to meetings, they went to the Green River meetings, they went to the Moab meetings, they were all here. I thought I was going to be there by myself again, standing in front of the Ute people here. And I am so happy for these guys are behind me.

I prayed every morning, so I am not by myself, I have got a lot of people from down south are helping me, they are behind me. So that is why I am standing right here. I am real proud of myself, standing on my feet here telling you people, I am against it, I don't like it to be close to our Reservation. Which is I care for my grandkids, my kids, young people for elderlys.

Now people are asking me, did they shut this place down? I don't promise them, I say I don't know. They ask me, you are the one fighting against it. Is that closed? Oh, that is good if it is closed down. You did really hard work to shut this place down up here.

My people here they don't get their water from this White Mesa water, they go uptown and haul this water, the drinking water. Even the young ones got, they got health problems, they think it is from the water that they drink. You never know, if it wasn't for me, these meetings would be boring. No, I said I don't want it to be close to our Reservation. Which is I care for my people here.

I stand up to the people when I go to meetings, I talk Navajo to them, they look at me, I thought you were Ute? Yeah, I am half. I am half Navajo and half Ute. But there is no hardly young people talks Ute, they just talk English. But I talk Ute and Navajo to my grandkids for them to understand, and what they are, what their plan is, for them to know.

And the sagebrush that we use for our home, for our fever, look what happened, there is nothing. And during the springtime, we usually get our tea, Indian tea, nice, and blooms with yellow flowers. No, we don't see that anymore, because of this White Mesa mill up here.

Yeah, they, you people used to treat me like a little puppy, and I spread all my words, I need help, I want you people to help me, back me up, for you people to stand behind me. Let's shut this place down, tell them to get out of here, move it somewhere else where they have got water. Here we have got no water.

For myself, I look at it now, because we stopped, now we have got good weather, it rains, moisture on our ground, maybe this springtime we are going to have a good, nice flowers around us, because there is no pollution, no smoke. It was killing our plants, what we used to use. Now, it rains good, now we are going to have a good land here, because we stopped this, there is no smoke, everything.

So I am here, and I am glad to see you people here, to be here on this White Mesa Ute Reservation.

I am not an agitated person, I am not on anything, I am not one of the board members, I am just living here on this Reservation. I help my people for them to understand. And good to see you people here.

Document #71 Angel, Bradley Green Action for Health and Environmental Justice

MS. RYAN: Next is Bradley Angel.

MR. ANGEL: Good morning, my name is Bradley Angel, and I am really glad to be here today, and I want to thank the Tribe members for inviting me to join them in speaking here today and support your efforts to stop the proposal to dump the radioactive toxic waste on White Mesa.

I will be here speaking today primarily as the director of the organization that works with rural and urban and desert and indigent communities here in Utah, and our organization is called Green Action for Health and Environmental Justice.

And our organization works with communities like yours, that basically affects your health and well-being, both from pollution, dirty industry and from governmental agencies, that sometimes and frequently I think that certain people are less important than others, and forget that their mandate is to uphold the law and treat all people of our country equally, and with the idea of democracy and justice that this country is supposedly founded on.

Last night there were a lot of people in Moab, and I am glad you folks are here today, too, and everybody who spoke last night is saying the same things that we are hearing today, people want the mess by the Colorado River moved, and they want it moved north, to the safest possible place, and in the safest way possible. Nobody wants it coming here, except IUC, and I am afraid possibly the Department of Energy.

A few minutes ago, Tribe members presented a document, and I just want to go through some of that, and that was some Tribal members charging the U.S. Department of Energy with violating the civil rights of the Tribal members, and charging the U.S. Department of Energy in the formal decision complaint with taking action that desecrates sacred sites, interferes with traditional religious practices, and violates government mandates to uphold environmental justice. Why does that complaint have to be considered, why is it important? The Department of Energy by law has to consider all reasonable alternatives when discussing what to and deciding what to do with the Moab waste. And it is incredible and outrageous and unacceptable that somehow the Department of Energy we pay with our tax dollars somehow thinks it is reasonable to dump radioactive and toxic waste, slurrying it and using incredible amounts of precious water to be dumped here and to dump it next to the White Mesa Ute community on top of very sacred and cultural important sites. You know, in September 2003 I was at the meeting we had in Moab, and a number of the officials were there, and they spoke eloquently then, and I recall Mr. Knight, as he did today, say, what is it about no that you don't understand. And I think it is really important that the opening comment today from Mr. Heart point out that it is the Tribe, the Tribal members that are the cultural experts, not the DOE. But the DOE doesn't seem to understand that.

The Tribal members and Tribal officials this morning brought out today, as they did a year and a half ago, that East Carbon was eliminated, that Green River was eliminated, and yet White Mesa

continues to be considered. And I am extremely worried that all the good words and facts that were presented here this morning, were actually presented at the scoping, and presented in the confrontation meetings, and seeing that the DOE must have a hole in the head, and going in one ear and clearly out the other.

One of the impacts that is not being considered is that the Tribal document has other responsibilities. They have to protect their people and land and culture. They should not have to be spending their limited time and resources fighting this outrageous and I believe illegal proposal. The complaint that was filed, sent in the mail yesterday to the Department of Energy in Washington D.C. was presented, has four main parts. I will quickly go through them.

One, is that the Department of Energy violated the Executive Order 12898, which requires federal agencies to take environmental justice concerns into consideration. And not taking action, and addressing them as appropriate, disproportionately high and adverse human health or environmental effects of its programs on minority population.

Now, how is it that dumping radioactive and toxic wastes next to White Mesa Ute community on top of so many culturally significant sites is not arbitrary and discriminatory? It is.

How is it that eliminating the white community of Green River and East Carbon from consideration, but leaving White Mesa in, which is even closer, is not discrimination? It is.

Secondly, the Executive Order 13007, provides for the protection of Indian sacred sites, and it says that the federal government shall accommodate access to and ceremonial use of the Indian sacred sites by Indian religious practitioners and avoid adversely affecting the physical integrity of such sacred sites.

Please tell me, dumping radioactive and toxic waste directly on top of these sites would not desecrate and affect their physical integrity, it of course does.

Thirdly, Executive Order 13175, Tribal Consultation. As the Tribal government officials made very clear today and have made very clear in the past, you can't just convene a meeting and say you are consulted. This is land, it is the original land. Where I live I could get up and move, you people can't, this is your homeland, and that was not addressed in the draft EIS. So the Tribal consultation, I believe, has been a mockery, and the Tribe deserves to be treated by law and by right.

And lastly, 42 U.S.C.A., Section 1996, federal statute, Protection and Preservation of Traditional Religions of Native Americans. And it says, you shall preserve for American Indians their inherent right or freedom to believe, express and exercise their traditional religion.

You just heard testimony again, as we have in the past, that that is not being adhered to, and that if in the alternative carried out that is a violation.

So not only should you not do it because it is the right thing to do, you must eliminate White Mesa from consideration because the law requires that you do so.

Lastly, I just want to say, there is one other thing that is not addressed in your Draft EIS, and not just from me as a director of an organization, with constituents in Moab, down to Arizona, a lot of the Tribes along the Colorado River, we guarantee that if this proposal is to be effected, there will be legal challenges, there will be administrative challenges, there will be nonviolent tactics to make sure there is no slurry line coming here, and it will cost incredible amounts in delay and financial costs that you haven't projected, and I am just giving you advance warning, it will be a fight that you don't want to get into.

Thank you.

MR. METZLER: Thank you.

Document #72 Fields, Sarah Individual

MS. RYAN: Sarah Fields.

MS. FIELDS: My name is Sarah Fields, and I am speaking as a citizen of Southeastern Utah.

I come here from Moab, and last night I was at the hearing in Moab where there were over 100 people, I believe, and probably at least 50 people spoke, and it was I believe unanimous that the people of Moab want the tailings to be moved off the floodplain, off the Colorado River.

The citizens of Moab and Grand County also do not wish to have the tailings moved to White Mesa. A number of people spoke to that, and even if the tailings coming to White Mesa would not they also have to go through the city of Moab. The people in Grand County do not want it to come down here. That waste created in Grand County, the citizens of Grand County benefited from the mining operation in Grand County, and they feel that it is Grand County's problem. And the law requires that the tailings should be put in the most isolated situation where the tailings would have the least possibility for human intrusion, and environmental intrusion, and would be least likely to contaminate the environment. That certainly eliminates the White Mesa option.

At the meeting last night the DOE said that the documents that were used for the DEIS were available. Well, yesterday morning I went to the Grand County library, where I have been continually doing research on various aspects of this, to take a look at the IUC proposal, because it is referenced. All I found was some colored slides from a presentation that IUC gave to the DOE or somebody at some meeting. The actual application that IUC submitted to the Department of Energy wasn't there. So it was not available to me to even comment in the DEIS process. Now, apparently the reason it wasn't there was because they submitted a copy to the Department of Energy, which has a lot of what is called proprietary information. Well, in that case the DOE is obligated to create a -- oh, somebody is talking, I am sorry.

The DOE should create a copy that has that proprietary information removed, and make that available to everyone. We shouldn't have to do a formal request to get that.

I also wanted to look at the cultural sites report that archaeology had created, and that is also referenced in the EIS. All I found was a cover sheet stamped confidential. So I couldn't even take a look at that. And I notice in the DEIS, it is pretty skinny when it comes to a description of

the types of archaeological sites and the types of cultural resources that would be impacted if the tailings came down here. It has nothing, no pictures, there are no photographs, nothing to give the decision-makers any idea of what would actually be initiated, and there is not really any description of what mitigation means. Mitigation for cultural sites means the cultural sites gets dug up a little bit and people remove, they remove the bones, they remove the artifacts, the pots, the shards, the arrowheads, and then the site is totally destroyed, that is what mitigation means. Mitigation means destruction.

Oh, another aspect of moving the tailings down to White Mesa is the fact that if they moved it by slurry line they would have to put a slurry line from the Moab site probably underneath the Colorado River, and across the Matheson Wetlands. The Matheson Wetlands are the largest wetlands on the Colorado River. The wetlands are owned and taken care of by the State of Utah and the Nature Conservancy. No one in the Department of Energy ever went to the Nature Conservancy, and I am unsure about whether they went to the State of Utah, but I know they never went to the Nature Conservancy and said, well, what do you think about this? Are you going to give us permission to put this slurry line across the wetlands? And if they had asked, they would have found out that the Nature Conservancy is not going to give them permission to run a slurry pipeline across the wetlands. But I guess the DOE has counted on their ability to -- the power of eminent domain when they just come along and say, okay, we have this project going and we are going to do it no matter what you think and no matter what you say.

The city of Moab is very concerned about putting a slurry pipeline through Moab. They are very concerned about trucking the tailings through Moab. So the people down here can count on the help and support of Grand County and the people of Moab to fight any possibility that the tailings would come down to White Mesa. Grand County does not want that option.

And just like Grand County, the city of Moab does not want the tailings to be left on the banks of the Colorado River, and there will be administrative challenges, there will be legal challenges, if the DOE makes any determination to leave the tailings in place.

So I think between San Juan and Grand County we have two options that are off the table.

The first option is leaving the tailings in place, that is off the table.

The second option is moving the tailings down to San Juan County, that is off the table. And I sure hope the Department of Energy gets that message.

Thank you.

Document #73 Beck, Dudley Individual

MS. PETERSON: Mr. Beck.

MR. BECK: Good morning, my name is Dudley Beck, D-u-d-l-e-y, B-e-c-k, I live in Bluff, Utah, I have been there about a year and a half. I came to Bluff after 18 years in Tuba City working with the Public Health Service.

I just want to say, and add my name to the list of people against moving the mill tailings to White Mesa. I am very happy to hear the comments today, and particularly in reference to eliminating the White Mesa for anything, irrespective of the problem in Moab. I was glad to hear that.

I have had tremendous respect for the Iroquois Nation since I was a young boy because of their philosophy of taking care of seven generations and planning for anything and everything that they do, and I have seen that throughout my lifetime now, in the native people, and the Navajo and the northwest Tribes, and I am glad to hear that is alive and well in the Utes, and I just wish it was alive and well throughout the white community throughout this great nation.

I am very scared as an individual, with the administration of this country. I think they have a plan and they could care less what most of us think or say. And that scares me. Our administration doesn't want to listen to science. We have great universities throughout the country who have spent years training scientists so that the administration can rely on their judgment in making decisions, and that does not appear to be happening.

When you are talking about global warming or clean energy use, and I would love to see us move back to the earlier philosophy of clean energy, and away from the uranium, and the coal-fired plants that created environmental problems for our community that we can ill-afford and that will affect our children and our grandchildren and our grandchildren's children.

We don't want, I don't want their blood money. There is no amount of money they can give us to mitigate these problems. And I would hope tonight that the San Juan County Commissioners would go on record against this formal process that we have been asked to participate in.

Thank you.

MR. METZLER: Thank you.

Document #74 Atcitty, Elaine White Mesa Ute Indian Tribe

MS. RYAN: Elaine Atcitty. I also want to thank Elaine and her staff for their part in getting us set up for this meeting. Thank you.

MS. ATCITTY: I am with the Ute Tribal Council.
First of all, I would like to thank my Vice Chairman, Art, for being here, our legal counsel, William Johnson, Tom Rice, Terry Knight and Carl Knight for also being here and a couple other community members.

And, you know, we had these meetings for so many years now, and we had set up the meetings here, about three or four times a year in the past, as I do recall, and I continue to hear the same things, and I think all the people continue to hear the same things. What I don't quite understand is what part is it, like our Tribal Councilman said, what part is it that is going to get the DOE to eliminate White Mesa from being a site. You know, I see a lot of comments, and I hear a lot of complaints about the uranium mill out there at White Mesa. Air pollution is one part of them, water is another. It is not going to affect us tomorrow or next year, but in the years to come. That is what we are afraid of here in the White Mesa community, that our water is going to be gone

and the uranium tailings will be getting into our water. Where are we going to go from here, where are we going to go tomorrow. I heard a lot of comments about dollars being exchanged. Yes, that is true, but for who. It is not White Mesa, it is not for me, nor is it for our grandkids. All we are taken away from is our house and our grandkids' house. What is it that, you know, that DOE and the uranium tailings, the people who do this, are going to say the day that we don't need this on our reservation. I have seen it come all across this United States, but I don't see it in the east there, but out in the isolated areas in the west, for the native Americans. This is their homeland, this is sovereign land, our great-great-grandfathers lived here. Yes, we had mining, back then, but they have long been shut down. There are some concerns. Mr. Heart, Vice Chairman Heart said the water rights, that is one of them, our Clean Air Act is another. We have enough problems as it is on our Reservation. We don't need to continue on with more problems coming to our people here.

And again I do support Thelma and her family back there, the lady, the advocate against this mill tailings way back then, for a number of years we was honored with a plaque for that, a service that he had done, the care that he had took, for his people here in White Mesa, I acknowledge that today here.

There has been some bloodshed, yes, like Thelma who was an advocate against something like this. We don't need no more of that. And, you know, I see things, you know, that transporting tailings, it is not going to work, either way it is not going to work and the people and the County Commissioners back there has made comments about this, too. What we are seeing here today, comments about our sacred ground, yes, that is true, our vegetation, is no longer there, the things that we use for native purposes is no longer there.

I mean I could go on all day here, but I think I made my point, and I would like to say thank you.

MR. METZLER: Thank you.

Document #75 Lehi, Malcom White Mesa Ute Administration

MS. RYAN: Mr. Lehi.

MR. LEHI: Good morning, I am Malcom Lehi, L-e-h-i.

My concern is sitting back here listening to what is going on here, I have lived here a long time, and I have seen Thelma's family going after the mill about this trying to shut it down for so many years and always wondering what they were doing that for. But now I know what the reason is, because I used to go out there hunting and stuff and a lot of times I seen animals out there that were about the color they should not be, and I wondered why a lot of the times over the years when we would be back there for whatever, or for water, and there is not very much water around here, and the drought and stuff, and I always wondered why this would be. Hunters told me that he had seen the deer that he wanted to go shoot, and he told me, hey, let's wait on it, it will come our way, but it never came our way. But a day later we seen the same buck and somebody had shot it, and he told me, there is that buck you wanted, you want him now? I said no, and we looked at him and he had, the color of his skin was different, he wasn't normal, and I told him, I says, well, he was over there at that pond, and I don't know if the people that run the mill that was there realized what they are doing to the animals here, and it kind of made me feel

bad, because, you know, we as native Americans, we used the animals in the sacred way, you know, to live, and feed our families and stuff. To make that deer go to waste like that, I don't think that was right, and somebody has to step up and say something about it and see that. I don't know if the community of Blanding knows about this, that you were just saying are having a meeting, I hope they come out and have their say, and put out this mill and shut it down, because we do really have to shut this mill down, because of all the things that are going on around here in just San Juan County. And I am pretty sure, you know, for me, if I had the power to say things, you know, I would shut that thing down, because I don't think that is a place for the mill to be. I think it is better off where there is nobody or no life flow or anything like that.

You know, we have our, like, our councilmen and our people that were talking and saying it is the future we look at, not the past.

That is all I have got to say. I appreciate this.

MR. METZLER: Thank you.

Document #76 Morgan, Manuel San Juan County Commission

MS. RYAN: Manuel Morgan.

MR. MORGAN: Good afternoon, my name is Manuel Morgan, I am a San Juan County Commissioner. This is kind of a difficult position for me to be in, but I just want to say that the Tribe have spoken, the Ute Tribe has spoken and the people have spoken for this community.

I think people and communities have different priorities, as we represent San Juan County we have different priorities. And we try to, as elected officials, we look at what is good, or what is best, or what is economically best or economical for the community.

San Juan County's position is to support the slurry. With that position I have stated, I only support this if the DOE comes to this community and educates the dangers, the impacts, that the community is going to experience, and I don't think to this date that we have had that lesson, whether this is good or bad for this community.

I talked to a gentleman the other day, and he told me, he says, you tell me one particle of uranium in the air, and for me to breathe that in, has that radiation in there, is that safe for me. I says, I don't think it is safe, because if it has got radiation you will breathe it in. And from there you have the impact. And that, you know, I get comments that says, well, the sun rays have more radiation than that particle of uranium, okay. If that is the case, if we are introducing another particle that has radioactivity, how is that going to impact this community, because you are adding another element of which we are already exposed to, and together the impact of those is what we don't understand. And so the community and the people that I represent have spoken and said that they are against this, and that is where I stand, is with my people. In this county there is 60 percent native Americans, and the DOE or this impact study basically addresses White Mesa community, and it is stated there are 300 people. The town of Blanding has how many people, San Juan County has how many people, and the impact of that is minimal because there is 300 people, that is not the case. Like I said, there is over 7,000 native Americans in this

county, and they say no to bringing the tailings down here, and that is where I am going to have to stand on this issue, and I will also stand on this and present that to the county in that way, if you are wondering where my position is.

I am not going to bash anyone, the DOE for doing what they are going.

I am not going to bash IUC for what they are doing, I understand what their job is and what they are up to, and what they provide communities. But when there is an unknown impact of something that we will -- what we don't know until in the future, then we need to support one another and stand together and say if you can't provide those answers to us, then we don't want it.

Thank you.

MR. METZLER: Thank you, Commissioner Morgan.

MS. RYAN: Is there anyone who did not sign the list who would like to comment at this time?

Document #77 Goodman, Margaret Individual

MS. GOODMAN: My name is Margaret Goodman, M-a-r-g-a-r-e-t, G-o-o-d-m-a-n.

I just wanted to put in some comments to say, you know, Mr. Morgan was right, we have a little bit more different priority than probably you gentlemen here. As native Americans, we cherish animals, even the weeds that grow around here and things like that, that is a priority for us in our everyday lives. And the uranium mill, it seems like to me, as I have heard, you know, like the gentleman over there said, there is deer, rabbits, and for unknown reasons their meat is a different color, breeding and what-not. And the deer go to the water hole over there, and as uranium is being packed or however the process goes, you don't know how much dust is coming off of that thing in the air, even a slight breeze how many people are going to inhale that dust, you know. And like he said, how many people came down to teach all these people, Tribal members here about this mill site. I don't see an interpreter here today, you know. If you want to step on the grounds of reaching everybody in the community I think that, you know, that is not right, there should be an interpreter, there should be somebody here that can get in contact with the Tribal members and actually see who is going to understand and who is going to know, see what you guys are trying to do. But the fact of the matter is, Native Americans do cherish the earth, the ground, the flowers, the weeds, whether it is a good weed or bad weed, some of it is medicine for people, who are ill, you know.

So I think that, you know, there has to be a lot of thought put into this and a lot of avenues to take to talk to the community members here, basically for their health. And basically for all the animals that we cherish. For some of them, it is their everyday meal, you know, that is the meal on their table for them.

That is it.

MR. METZLER: Thank you, Margaret.

MS. RYAN: Is there anyone else who would like to comment at this time, who has not commented yet?

MR. METZLER: All right. Well, I think that ends it.

(Public hearing concluded at 12:45 o'clock p.m.).

REPORTER'S CERTIFICATE

I, Joseph J. Rusk, do hereby certify that the foregoing is a true transcript of the testimony given and the proceedings had.

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JOSEPH J. RUSK, CSR, RPR, RMR
Registered Professional Reporter
RUSK & RUSK COURT REPORTERS
Post Office Box 3911
Grand Junction, Colorado 81502

My Commission Expires: 10/10/2006

Appearances

JOEL BERWICK
PROJECT ENGINEER
U.S. DEPARTMENT OF ENERGY
2597 B 3/4 Road
Grand Junction, Colorado 81503

TOBY WRIGHT

DEBBIE PETERSON

WENDEE RYAN

VIVIAN BOWIE

The Draft Environmental Impact Statement (DEIS) Public Hearing held at the City Hall Meeting Room, 240 East Main Street, Green River, Utah, on the 25th day of January, 2005, at 6:00 o'clock p.m., before Joseph J. Rusk, Registered Professional Reporter and Notary Public at Large.

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Document #78 Weisheit, John Living Rivers

MR. WEISHEIT: John, J-o-h-n, Weisheit, W-e-i-s-h-e-i-t, and I represent four groups, so I will explain them carefully. The Sierra Club, through the Nuclear Committee, which is comprised of myself, Sarah Fields, Bill Love, William Love, and Ken Sleight, S-l-e-i-g-h-t, we provided comments to the Sierra Club for scoping.

I also represent the Colorado Plateau River Guides, which is a trade association of river guides, these are the river guides that run Cataract Canyon downstream of the tailings pile.

I also represent Colorado Riverkeeper, Riverkeeper is one word, and it is part of an alliance of 120 international groups and national groups, that work under the auspices of a Waterkeeper, one word, Alliance, based in New York.

And I also am the Conservation Director of Living Rivers, based in Moab, Utah. I won't speak for the Sierra Club, because we will write more detailed comments, but I would like to speak for the river groups at this time, the three.

These three groups of which I represent, I am by the way the secretary of -- secretary-treasurer. The three river groups would like the tailings pile removed. As to whether it is Klondike or Crescent, we believe that those would be the best places to put it. However, we feel Crescent would be better, because the Mancos shale is thicker. The watershed is not as big, you know, it is next, very close to the Bookcliffs, which is kind of a watershed divide.

But we do have one concern about Crescent Junction, and that is there is a person that lives there, even the gas station has since closed and the cafe has since closed, but we are concerned about

that person's -- I was hoping that person would be here, but they are not. But we would appreciate it if this person is contacted to see how they feel about this particular placement, and as far as their safety and so on.

We are very opposed to having the site taken to San Juan, mostly on -- for moral reasons. We feel that this is Grand County's problem, and we think it should stay in Grand County. We really don't want to spread our waste to other places to be dealt with. And as far as environmental justice reasons, we sympathize with the White Mesa Indian Tribe, we do not want to bring our pollution to affect their groundwater, so we are not at all in favor of imposing the environmental justice and socioeconomics on the native American groups and whatnot.

Number two, the reason why we feel it should be moved is because we feel that there is enough reason to show doubt that this pile, if kept in place, would remain in place for 200 to 1,000 years. We, as river people, we understand the dynamics of rivers and we are well versed in what the U.S.G.S. and other scientific groups have had to report on the hydrology of the Colorado River, and we believe based mostly on two major floods in the 19th century that happened in the 1800's, 1860's and 1880's, as well as the flows of 1917, 1983 and '84, that we feel that the place would be compromised and that this radioactive material associated with, and with all the other associated chemicals, would go into Canyonlands National Park, radiate all the beaches, and would essentially stop our business, as far as river guides and river, private river runners that are using Canyonlands National Park. We feel it would shut the park down, and we feel that would be bad for us as workers on the river, it would be bad for our city, which depends on tourism, and also of course it would be bad for -- that kind of mobilization of radioactive material, it would be Nevada's water supply, and California's water supply and Arizona's water supply.

So we want to be good neighbors, we don't want to spread our waste around on the Colorado River system.

We are also concerned about the endangered fish because the Colorado River has the highest rate of possible extinction of native fish, and so we are very concerned about the quality of the native fish, and we feel that anything that we can possibly do to minimize their extinction, and this is definitely one of the things that we are concerned with.

Now, there was one more thing. I will let other people speak, and I think there is one more thing, but I will be happy to acquiesce to the next person.

Document #79 Fields, Sarah Sierra Club

MS. FIELDS: My name is Sarah, S-a-r-a-h, Fields, F-i-e-l-d-s, and I represent the Glen Canyon Group of the Utah Chapter of the Sierra Club, and we are located down in Moab. One thing that I think the DOE has to do is really go back over the Uranium Mill Tailings Radiation Control Act and the legislative history of that Act, and think about what the intent of congress was when they passed that Act. And I have a few quotes here. And this is from the legislative history. "The Legislation will require every responsible effort to be made by the Federal Government to provide for the disposal, stabilization and control in a safe and environmentally sound manner of such tailings to prevent or minimize the diffusion of radon" or the entry of other hazardous things into the environment. It also said that the public is to have a strong role in the selection of any remedy to procedures provided by the National Environmental Policy Act. It is expected that

the Secretary, that is the Secretary of Energy, will give full consideration to the wishes of the public, as expressed through those processes. That is the wishes of the public. In some cases where the department will remedy inactive tailings hazards, tailings will be removed from the original processing site, and disposed of at more suitable locations.

It is intended that the DOE not rush headlong into using technology that may be effective in the short period of time. The committee does not want to visit this problem again, with additional aid. The remedial action must be done right the first time. And in the Act itself, it says "Congressional Findings and Purposes. Protection of the public health, safety and welfare and the regulation of interstate commerce require that every reasonable effort be made to provide for the stabilization, disposal and control in a safe and environmentally sound manner of such tailings in order to prevent or minimize radon diffusion into the environment and to prevent or minimize other environmental hazards from such tailings." And in response to this, the Department of Energy moved at least 10 uranium tailings sites from inactive mills off the floodplains of nearby rivers.

So I think that under these circumstances where you have even a greater risk of contamination going into the river, where you have even greater risk because of all these unknowns that were listed up here on the board, of the risk of flooding, the questions regarding how much contamination is still in the tailings impoundment, how much that contamination will continue to go into the groundwater, even after the current groundwater remediation is over, even if it takes 100 years. So we have all these questions.

So I think it behooves the DOE to move the tailings pile off the river in order to comply with the Act.

MS. RYAN: Is there anyone else who would like to comment who didn't comment?

Document #80 Weisheit, John Living Rivers

John, do you have something else?

MR. WEISHEIT: Yes, there is another example of what I wanted, I was concerned about, because the Bureau of Reclamation did a study that I would like to bring to your attention about the probable maximum rainstorm that could happen on the Colorado River system and at Hoover Dam as the site for the full amount of water that could come through, and it was 700,000 cubic feet per second. Now, of course that includes the San Juan and Colorado and Green Rivers but, you know, it just goes to show the dynamic ability of the Colorado River, and I just find in general, and I will detail these in my comments, but I really don't think the DOE has a credible document to otherwise prove reasonable concerns that this tailings pile will not lift and float downstream in a catastrophic event. We are already overdue for a 100-year flood, and so, you know, it seems like we are ready for a situation there that needs to be looked at with much more credibility.

Thank you.

Document #81 Fields, Sarah Sierra Club

MS. RYAN: Sarah, do you have additional comments?

MS. FIELDS: Yes, I intend to make extensive written comments, so I will just touch on some of the, some comments, other comments I have.

One thing as far as the alternative, I would agree that the best alternative would be to move the tailings to Crescent Junction. The only other possible alternative would be Klondike Flats. I think it is out of the question to send the tailings down to White Mesa, because of the nearness to the White Mesa Ute community, because of the impact on the cultural sites at White Mesa where some very beautiful archaeological sites, which are now hidden, because most of -- they are under the ground, but those sites will be destroyed.

Some of the differences between Crescent Junction and Klondike Flats are the fact that the Klondike Flats site is right next to an airport, it is also next to a county disposal site, and another thing, it is in an area that is frequented by a lot of visitors, there are a lot of people who ride bicycles, they ride ATVs, they ride motorcycles, dirt bikes in that whole area. And that means going to another area, which will be, will be impacted, and I think that site has a greater chance to be impacted by human activity, and the site would also impact the workers and visitors in that area.

Also I think that the tailings should be moved by rail, considering the amount of tailings, the rail haul option, not truck haul. The truck haul option would mean almost 100 percent increase in traffic on the road, either between Klondike Flats or Moab and Crescent Junction. That means impact to the tourist industry, and that means degradation of that highway, when you have those huge trucks. And I think the other thing, that UDOT expressed their concerns to the DOE about what would happen to that roadway if it were used to haul those tailings up the road.

Also I think that the DOE should consider why we are here, why did this all happen, why did it happen. The DOE ended up with the responsibility for this site, and the reason was because another federal agency failed to regulate the site. The Nuclear Regulatory Commission did not make sure that there was in the past an adequate groundwater remediation. It wasn't until the Oak Ridge National Laboratory came along and did a lot of diagnostics that they discovered there was a huge flume of uranium that was coming from the old mill site itself because the NRC never required Atlas to put in monitoring wells between the site itself and the river, all the monitoring wells were around in town. So that is another failure.

The NRC failed to get the amount of surety that was needed to reclaim this site. Atlas was supposed to pay for all of this, not all of us in this room through our taxes, now it is the members of the public. Now that the members of the public are paying for it, I think we should have a little more say-so than what the NRC has to say about it. And I think it is the general consensus of the members of the public that that tailings pile should be moved. Four western governors say it should be moved. Our congressional representatives all say it should be moved. Grand County Council says it should be moved? The State of Utah says it should be moved. Who says it shouldn't be moved. The only person that is going to say it shouldn't be moved is the DOE, and the decision-makers in Washington. Wait a minute, we hired them to take care of this. Our state

representatives, DOE, you take care of it. So I think that the DOE should take care of it in the way that the community wants it to be taken care of. That is what congress said.

Thank you.

MS. RYAN: We encourage you to send your full written comments.

MS. FIELDS: Oh, it will take me a while.

MS. RYAN: Thank you very much for coming, and again, anyone who comments either tonight or anywhere through the comment period will be on the list to receive the final Environmental Impact Statement, so we encourage you to give us your address and so forth on the attendance register.

Thank you.

(Public hearing concluded at 6:42 o'clock p.m.).

REPORTER'S CERTIFICATE

I, Joseph J. Rusk, do hereby certify that the foregoing is a true transcript of the testimony given and the proceedings had.

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JOSEPH J. RUSK, CSR, RPR, RMR
Registered Professional Reporter
RUSK & RUSK COURT REPORTERS
Post Office Box 3911
Grand Junction, Colorado 81502

My Commission Expires: 10/10/2006

Appearances

DONALD R. METZLER
PROGRAM MANAGER
U.S. DEPARTMENT OF ENERGY
2597 3/4 Road
Grand Junction, Colorado 81503

JOEL BERWICK

TOBY WRIGHT

DEBBIE PETERSON

WENDEE RYAN

TOM ANDERSON

VIVIAN BOWIE

The Draft Environmental Impact Statement (DEIS) Public Hearing held at the Aarchway Inn, 1551 N. Highway 191, Moab, Utah, on the 26th day of January, 2005, at 6:00 o'clock p.m., before Joseph J. Rusk, Registered Professional Reporter and Notary Public at Large.

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Document #82 Tanner, Rex Grand County Council

MR. TANNER: Where is the appropriate place to stand. Rex, R-e-x, Tanner, T-a-n-n-e-r.

Well, first I would like to thank Don and Joel and the staff and the DOE for going through this tedious process, but a very much-needed process, and I just want to say thank you for the hard work that I know all of you have put into this, and thank you for taking the time to go through these public hearing processes, it is an important study.

My name is Rex Tanner, and I am the co-chair of the Grand County Council, and I am also the co-chair of the Stakeholders group, a group that has been involved with the process alongside the DOE for several years now, and I was asked by the Grand County Council to come and make an official comment, in addition to the written comments that we will be sending.

But our position is that Grand County Council, representing Grand County and all the citizens here, and I think you can see the room is a lot more packed than what Green River was. I understand there were two people in Green River, I think, but our position is that the only acceptable thing to do here is move it, and cost is not something that we think should be considered, we are in favor of seeing it go to the Klondike area. We have got mixed feelings whether it be slurry or rail. I think those are the two preferred methods over the trucking, though we do recognize the trucking would be a component to either one of those alternatives. For us, I think the big thing is as you listed earlier was the areas of uncertainty. And the fact that you made mention that you wanted to design something if it was to be capped in place or even if it

was removed to another location, a facility that would last forever, and we know that that is probably not feasible.

But even to meet the requirements of the 200- to 1,000-year range, I think that at its current location, when you look at that last picture that you showed, and you can see the deep river gorge that was cut in the Colorado Plateau, it is very evident that that is one powerful force, that river, what we call the Colorado River. If you look at pictures, the aerial views, you can see that there is vegetation growth right almost up to the edge of the one, I believe the south side of the pile, and I think that also follows the line of the high water mark in 1983, which I believe was 66,000 cubic feet per second flowing down that river. And that really basically was the edge of the pile. And the fact that we have heard several studies come about and brought to light in the last six months or so on this subject, there is some conflicting information from potentially some of the information that is presented in the EIS, and I think that what that indicates to me and to the Grand County Council, is that we are not sure, we are not sure that it would be safe there, we are not -- that level of uncertainty exists, and that in itself is why it needs to be moved.

And I won't take much more time other than to say upriver, we have I believe there are two reservoirs that are connected to this system, and I think that that has to be considered as an additional factor with the loads that are carried in those reservoirs for potential disasters. And I think we all have seen in the last month or two the power of water, what it can do, from the tsunami situation in Indochina, to the floods in California, also even in the St. George area with some of the problems we had over there. So I think you can't, you can't underestimate the power of water, and I don't think that we can say with any predictability that that facility would be safe for a long period of time based on the location. And from that standpoint, our comments and letters will reflect those views.

One last point, I would encourage everybody here to not just stop at this juncture in terms of your comments. I would really like to see you make as much of an effort to contact everybody that is involved with this project, the elected officials, and not just in the State of Utah, but people in California, Nevada and Arizona, they all have a vested interest here.

And last but not least, this isn't just about Grand County and the 9,000 residents in Grand County, it is about the four or five, 10 million people that are downriver of this project, that if you made a miscalculation, and it did break loose with a high-water event, what would be the long-term effects for the Southwestern United States, and the millions of people involved?

Thank you. With that I will turn it over to Mayor Dave.

Document #83 Sakrison, Dave City of Moab, Mayor

MR. SAKRISON: Well said, Rex. I am not as good as Rex, I have got notes.

First of all, I would like to say good evening, and Don, on behalf of the city of Moab welcome, and thank you very much for allowing this group of people, and there is, I am sure there are more out there that would like to comment also, giving them this opportunity to express their views.

This process has been going on for a long time, as we all know, and I am glad we may be seeing the light at the end of the tunnel, hopefully. I promise to keep my remarks brief in order that we

may hear from everybody and their concerns. I would like to begin by saying that the city of Moab is in the process of drafting a formal reply, and it will be sent prior to the deadline on February 18th. I would, however, like to voice some of the governing body's general positions and concerns.

The city of Moab would like to join in with the State of Utah, California, New Mexico, Arizona, Nevada, Grand County and San Juan County, our congressional delegation, and I am sure I have left out some other organizations or groups, and I apologize for that, but we would like to join with them in asking that the Atlas tailings pile be moved. It is the city's position that there are too many uncertainties, and an inherent amount of risk involved by leaving the tailings in place.

There are concerns and questions as to the potential for contamination of the Moab aquifer.

There are questions and concerns as to what a catastrophic flood event might do to the integrity of the tailings if left in place.

There are also socioeconomic impacts that we feel have not been adequately addressed. For example, the visual impact as presented in the document on pages 433 and 434, which do not meet BLM regulations. We feel that there would be a positive economic impact on moving the pile. I said positive economic impact on moving the pile, especially in the visitors' impression on our area.

And then there is the potential economic impact, if there were to be a catastrophic event, not only in the mitigation of the event, but in the perception to the rest of the world.

These are just a few of our concerns, and as a city, that the city has about leaving the tailings in place.

As to moving the tailings the city's preferred alternative would be the Klondike site. We feel this would be the best alternative, and would mitigate any hauling of any waste and debris through the city of Moab, which we would strongly object to.

In closing, we have been looking at this remediation process for a long time, and the only thing that has happened is that the costs have gone up. We need to move it now.

It would be a shame if we capped this in place and found out at a later date that it had to be moved for some reason. What would the cost be then?

Virtually every mill site along any waterway in this country has been moved and remediated. I believe it is in the best interest of not only the citizens of this community, but those living downstream to move these tailings. It is the right thing to do.

And having said that, thank you.

MR. METZLER: Thank you, sir, that was very clear, and I am sure you stayed way within that 5 minute time frame.

Document #84 Russell, Steve Individual

MS. RYAN: Steve Russell.

MR. RUSSELL: Thank you for coming. Five minutes is an eternity to stand up and talk, and I don't think that I will take that long, but thank you for giving us this opportunity. Steve Russell, you know me, Joe.

And I am here on behalf I think of all of you folks out there, I hope. What I would like to talk about are three issues that I think are relevant to this issue, responsibility, priorities, and common sense.

The pile is there because during the cold war our government asked people to go out and search the Four Corners area for uranium for purposes of the cold war, and that was done. A huge frenzy of mining took place and never mind the Cold War aspect of it, what we are left with right now is this pile of tailings on the banks of the Colorado River.

I think that our government has a responsibility now to do the most expeditious, sensible thing in order to remediate what was left there, for their benefit. No one I don't think is going to argue that the pile contains a lot of bad potentially dangerous stuff. And it is on the banks of what really is the heart, the beating heart of the entire Southwest of the United States, the Colorado River. The entire Southwestern United States depends on that river for drinking water, for agricultural water, for life, Phoenix wouldn't exist without it, Las Vegas wouldn't exist without it, we can argue that Los Angeles wouldn't exist without it. The Imperial Valley would not exist without it.

So what should be done with it? We should move it off the river. The cost now, and I will be corrected if I am wrong, is in the neighborhood of 500 million dollars, that is a big number, but not to the U.S. Government.

We are currently engaged in an action in the Mideast, in Iraq we spent 120 billion dollars there. George Bush has just asked for another 80 billion dollars for that effort. Why are we there? We thought, some people thought that there were weapons of mass destruction that posed a dire threat to the United States and to the world. And so we have gone and we have done what we have done, and we found out that we were wrong, dead wrong. And there is still another 80 billion dollars on the table.

One mile north of here is a clear and present danger to the health and safety of the citizens of this county, and the entire Southwestern United States. It is there, there is no question about it. You can send the inspectors in there and they are going to see it. They are going to know that it is there. And 500 million dollars, although that is a big number, is one-half of one percent of what is being asked for in addition to the 120 to 150 billion that has already gone, and that is in relative terms a drop in the bucket, and I think that our government could find it somewhere.

Now, this is not DOE's fault, it is nobody's fault, but it is there. And so that is the priorities part of it. Okay. If we can do what we are doing, and spend all of the money to do what we are doing,

I don't care how you feel about it, but if we can do that, I think that we can find 500 million dollars to eliminate this clear and present danger to the Southwest of our nation. That was the whole deal about going over in to Iraq, was to protect ourselves. Okay, we are protecting ourselves here for pennies on the dollar. So that is the priorities part, and now the common sense part.

It is there. It would be the height of hubris for us to sit here and say that for all time and eternity, let alone 200 to 1,000 years, that nothing bad is going to happen on this major, giant river that is fed by the entire Rocky Mountains of the west, the Wasatch, the Uintas, it is impossible, it would be impossible to say that nothing bad could happen to it. And so the only reasonable thing to do is to move it. Klondike I think is the way to go, rail. I don't know, I frankly don't know anything about the Cresent Junction site, but it is farther off and so Klondike I think is safe and secure, so I think that would probably be better. I don't think White Mesa is a good idea, and I especially don't think that slurrying it to White Mesa is a good idea. Think of all the water, that is a lot of water. Then what are you going to do with it after it has gone down there, put it in the San Juan River? And trucking it down there isn't the way either.

My time is up.

MR. METZLER: Again there is probably a lot of people that want to talk, so we ask you to try to make the main points, and I again don't want to rush you, but five minutes, and that would just show courtesy to all your fellow compatriots that are here.

Document #85 Bodner, David Individual

MR. BODNER: B-o-d-n-e-r, first name David.

Thank you for the opportunity to once again comment on the need to remove the mill tailings located on the banks of the Colorado River. I am a resident and business owner in Moab. I am a licensed river guide on the Colorado River both above and below reservoir Powell.

When the National Academy of Science was here I requested that a study of the sand bars on the Colorado below the pile be made due to the number of people who raft the Colorado every year. The sand bars are eroded and rebuilt every spring by the high water that passes by. People camp, eat, play and sleep on the bars. Dishes are washed using river water. Some people still use the river water to make coffee.

What are the potential impacts to this 6 or 7,000 people who recreate on the river? What are the potential impacts to the river guides who spend weeks every summer working on the river? What are the potential dangers to the people who play, camp, swim, water-ski and fish on reservoir Powell? What are the dangers to the millions of people downstream who drink the water or irrigate with it?

I would like to give an example of the problem that exists in attempting to mitigate the danger by leaving the piles in place.

From 1976 to 1983, that is seven years, McDougal Oil delivered four super tankers of sulfuric acid per day to Atlas Minerals. Based on a 300-day year and 50 tons of acid per truck, that comes

out to 60,000 tons per year, 420,000 tons over the seven-year period. The person that gave me this information told me this was a conservative estimate, that they probably operated more than 300 days a year. No acid was hauled away to be recycled, not one drop.

When Atlas was finished with the acid it went into the pile. The same thing happened to the caustic soda and every other chemical that was delivered to Atlas.

There is no option other than moving this mess away from the river. If the pile could be riffraffed so it could not be swept away by a flood flow from the river, that would still not prevent the groundwater from entering and dissolving or leaching contaminants back into the river when the water subsides. There is evidence of flood flows in excess of 100,000 cubic feet per second, and more, have come down the river corridor, and contrary to your report, the main force of these flows will go toward the pile, and start eating it away from the southwest corner. That corner is where the parts of the buildings that were too contaminated to be recycled are buried.

Please make the right decision and move it away from the river.

Thank you.

MR. METZLER: Thank you, David.

Document #86 Seal, Franklin Individual

MS. RYAN: Franklin Seal.

MR. SEAL: Thank you for the opportunity to comment. Franklin Seal, S-e-a-l.

I have lived in Moab 12 and a half years now, and for four years I worked at the local paper here, and so I had an opportunity to cover this story in detail more times than I care to remember. And I don't know that I can really add a lot of substantive comments beyond what has already been made, but I would like to say just observing the fact that this draft EIS came out without a preferred alternative was quite interesting, and I think that despite the preponderance of science that points to this being a clear risk, that the draft EIS seems to be leaning and setting the stage for a decision which perhaps has already been made in headquarters, to leave the pile in place, and I think that ultimately this kind of a situation is decided based on politics, but that is the reality that this community and all the communities downstream of this pile face. And that is no fault of yours (indicating), that is just the way the system is. And I think that we need to work very hard over the next month and a half until this decision is announced finally, to see if we can't change some minds in D.C. I think science is a great thing, but having watched the current administration over the last four years, I don't think that they give a whole lot of credibility to science, and I don't think they really care that much about science.

I don't think it is a question of money, I think it is a question of who is on our side and who is speaking out.

As to what I personally think, we definitely should move the pile. We have got a rail line there, why build another road, if you have already got one there that is already designed to hold lots of

heavy traffic, and it goes right to the Klondike site, which is already being used as a disposal site, so let's put it there.

And thank you for your time.

MR. METZLER: Franklin, thank you.

Document #87 Bliss, Eleanor Grand Canyon Trust

MS. RYAN: Eleanor Bliss.

MS. BLISS: Thank you for being here.

My last name is B-l-i-s-s, first name is Eleanor.

The citizens of Moab have been actively trying to get the Atlas tailings moved for more than 12 years. We were assured by Bill Richardson in November '99 that the tailings would be moved. There was gratitude by the community that we finally had been heard. That day we felt it was possible for the government to do the right thing, for Moab, for the millions of people downstream from the pile and to the future. It was celebratory.

Here we stand five years since, rehashing and talking about wether we should move the pile. The Floyd Spence Act clearly stated to transfer the ownership of the pile from the NRC to the DOE, that the piled would be moved. That wasn't something on the table. That statement has somehow quietly been dismissed in this EIS. How can we possibly be studying cleaning up a radioactive pile on line beside the drinking water of 26 million people, even laughingly entertain a notion of covering in place. Please tell me this is a joke.

Currently the groundwater leaking into the river in excess of 100,000 gallons per day is so toxic that minnows die within a minute of being in contact with the water, which is very startling. Ken Solomon of the University of Utah informs us the groundwater is migrating over into the Matheson Wetlands. How long will it take before it shows up in the wells of the residents of Moab?

It is already obviously contaminating fish, birds, and whomever eats those. Dr. John Dohrenwend, I will kill that name, who has been studying the path of the Colorado, was very informative the other night, give thanks to him, studying the Colorado and coming up with an entirely different scenario and conclusion about where the Colorado will be migrating, which is toward the pile and not away, as DEIS states, which in my mind doesn't really matter one way or another. He showed us amazing pictures of flooding in 1917, the 76,000 c.f.s., in which the river obviously was already sweeping through where the Atlas tailings pile stands now. I can't imagine, and in 1884, it was 125,000 c.f.s., amazing, just too boggling to imagine where the water would be on the pile or above the pile. It is not a matter of if, it is a matter of when. We have no idea when that, you know, when the flooding will take place, but I do hope, I hope that we can speedily remove this pile. It is a horror show to think if we actually had a flood year and this thing got away from us before we have had a chance to move it.

I think listening to John I realize for the first time, really, when I saw the pictures, that floods would sweep right in to the Moab valley, it would be circulating all that toxic material here going round and round in circles, because it is an eddy, and that is just the beginning of the horrors, because then it would dry up eventually, and as it dried up it would leave all that toxic stuff to blow as it evaporated all over, and of course sweep downriver. There are 26 million people downstream from us that depend on this water. We have been shown when some of the rocket fuel got into the water, that it is now in all of our, in all of our produce in large amounts, surprising, quick returning back into the shelves of our supermarket. And we are just talking about 200 years, 1,000 years, which doesn't even begin to break down this toxic stuff. We are talking about in 1,000 years it will only break down by 1 percent.

Anyway, it is a no-brainer, it should be moved, it should be moved away from the river. I would hope it gets moved to Klondike.

And thank you very much.

MR. METZLER: Thank you.

Document #88 Hazen, Gary Individual

MS. RYAN: Gary Hazen.

MR. HAZEN: My name is Gary Hazen, H-a-z-e-n.

I am a concerned citizen. I will give my comments as well. Part of the DOE's mission is to ensure the environmental cleanup of the National Nuclear Weapons Complex by providing a responsible resolution for the permanent disposal of the nation's radioactive waste. The DOE capping the Atlas tailings pile in place is not providing a permanent disposal of radioactive waste. 76 percent of Grand County sales tax revenues is from tourism. Lake Powell's recreation revenues exceeds 340 million dollars a year. The probable possibilities of floods, earthquakes, pile failures, major degradation of 25 million Americans' drinking water, devastations of the local economies, lost services, ruined communities and shattered lives are all unacceptable to the American public.

The economic loss of the Atlas pile failure will truly outstrip the cost of a couple moves of the tailings to the alternative plateau Klondike site.

Thank you.

MR. METZLER: That was quick, thank you, sir.

Document #89 Weisheit, John Living Rivers

MS. RYAN: John Weisheit.

MR. WEISHEIT: John Weisheit, I represent Living Rivers as the Conservation Director, and I represent the Colorado Riverkeeper with the Waterkeeper Alliance.

I spoke last night at Green River, so I will truncate my comments, they have already been iterated tonight, but there is one thing I have a request for. The cooperating agencies have neglected the Bureau of Reclamation and because of the dams upstream in the Wayne Aspinall unit and downstream in Lake Powell, are managed by the Bureau of Reclamation. The Bureau of Reclamation has dam site engineers, and they also have hydrologists, and I think that their data would be very useful to this particular EIS. So I would request that there be a dialogue with the Bureau of Reclamation to discuss the potentials of the dams upstream, because the dams upstream, including Lake Powell, are not going to last 200 to 1,000 years. And so the older they get the more potential there is for these dams to fail, and for this waste to end up in Lake Powell. And so it would be probably very beneficial to find out from the Bureau of Reclamation how stable their dams are upstream and so on.

Thank you.

MR. METZLER: John, thank you, thanks for coming both nights.

Document #90 Hancock, Karla Individual

MS. RYAN: Karla Hancock.

MS. HANCOCK: It is Karla with a K, Hancock.

Most of these people know I was the mayor of Moab from ‘98 to 2002, and while I was mayor I was an active member of the Atlas Stakeholders. I am now just speaking as a private citizen, but I feel equally strongly and probably more so about this issue.

I am very concerned about the leaching of tailings materials into the Colorado River, but I am even more concerned about the possibility of local contamination in the event of a major flood, as well as the present and future effect of the presence of the pile on our groundwater supplies.

I think capping the pile would simply be applying a Band-Aid where major surgery is needed. I urge you to move the pile to a safer location. I too would prefer Klondike and think the use of the rail would be most logical.

And thank you for letting me express my views.

MR. METZLER: Thank you, Karla.

Document #91 Inskip, Eleanor Individual

MS. RYAN: Eleanor Inskip.

MS. INSKIP: My name is Eleanor Inskip, I-n-s-k-i-p. Here is my card.

I always thought that NEPA stood for the Environmental Protection Act. I was really surprised to see that it was the Policy Act when you put it up on the board. So that was kind of an amazing thing. And I was really pleased to see you. I listened to you on the radio when you went to the city and talked about what you are doing with spraying water up in the air last fall, and I thought

that is quite interesting, and it is always fun to see somebody's face after you listen to them for awhile, so it was kind of fun.

I also would like to say, as a private citizen, I would like to say that the pile should be moved. I think the least amount of exposure should be for everyone and everything, should be a high priority, so moving it the shortest distance. And I think that would probably be a way to go, the way to go.

And when you put up the areas of uncertainty, those words up there, I was looking at that, and, you know, I have been, I have been in Moab longer, since 1976, and when we went through the shall we bury nuclear waste in Canyonlands. When you start thinking about the amount of time that is involved, and truly 200 to 1,000 years is nothing, when you are talking -- last night I heard myself say tens of hundreds of millions of years, and I really don't know what, you know, what the time frame is, it is like geologic time and it is kind of -- and I don't even know how you wrap your head around it.

But one of the proposals that was made at that point in time was to have an atomic priests and priestesses, and it does sound kind of funny on the surface, and I actually tried to get some people to dress up in sheets and come tonight dressed as atomic priests and priestesses, but they wouldn't do it.

The whole point of it really though was that it needs to be monitored, and it needs to be monitored ongoing. And I don't think we should be burying it. I know that is not in your alternatives there, but I really think we should be able to ongoingly keep track of what is going on with this. And putting it under the ground so it can be forgotten and we can walk away from it, I don't think that is a very good idea.

I do think it should be moved, it is very dangerous. It has been a long time since anybody drank from the Colorado River if they were paying attention, uranium, et cetera does not settle out, and you can't clean it out with your little filters.

So I would say, and I don't know how you are going to get it there, rail, truck, slurry sounds really sloppy, you know, so I don't know about that, but I would very much ask that it be moved.

Thank you for your time.

MR. METZLER: Thank you.

Document #92 Vaughn, Rita Individual

MS. RYAN: Rita Vaughn is next.

MS. VAUGHN: Rita, R-i-t-a, V-a-u-g-h-n.

I just want to say I want the tailings moved, and Klondike Bluffs, Crescent Junction would be my two best places, by rail. I hate doing this kind of stuff, so there you go.

MR. METZLER: Well, that was so meaningful, it was short, but you made your point.

Document #93 Fitzburgh, Mary Beth Individual

MS. RYAN: Mary Beth Fitzburgh.

MS. FITZBURGH: It is Mary Beth, M-a-r-y, B-e-t-h, F-i-t-z-b-u-r-g-h.

Just very briefly I would like to see the tailings moved to Klondike to Crescent Junction by rail for reasons that have already been expressed.

Thank you.

MR. METZLER: Thank you. Short and to the point.

Document #94 Harrison, Bruce Individual

MS. RYAN: Bruce Harrison.

MR. HARRISON: Bruce Harrison, H-a-r-r-i-s-o-n.

I will try not to repeat things that have been said, there are a lot of great things that have been said.

A couple of things. One thing, I lived in the Black Hills of South Dakota in 1972. It dumped seven inches of rain in three hours, and killed 204 people. So you don't know what Mother Nature can do. I have seen hail softball size at 90 miles an hour in Nebraska. If man is messing with the planet you just don't know to what level things are going to change.

It used to be that the tribes wouldn't make a decision to move the buffalo hunt if it affected seven generations. Now we do things that have much greater consequences than just seven generations, thousands and thousands of years. So we have to look way beyond seven generations.

It seems like, and I don't know if it is just me, but it seems like there is this consciousness near Washington that only cares about the distance of their lifetime, if I am out of here, I don't care. There is no consideration for grandchildren, future generations. It seems like we are on a downhill spiral and everybody seems to think that there is no pulling out of it, what the heck, get what you can and get out.

It is hard for common citizens, working class citizens to keep educated. I want to thank John, Professor John, that helped us so much in learning the facts that it seems like could be slid under the rug to us.

Now, I don't know about you, but I don't get away at home at sweeping things under the rug. But I notice a bulge under the carpet in Washington. It is getting big enough for all of us to see it. We need this to be taken care of. I don't know what you can do to save it. You make a wage, they sent you here, and said, okay, all of these people are going to say this, keep a peaceful time, come back to us and we are going to do this other thing.

I don't know what you can say to change their minds or to let them know how much it means to us to have this right. But I hope you do that. I hope you can't sleep at night if you can't do that. Let's see if I have said everything.

Does the pile belong to you now?

MR. METZLER: It does. Not me personally. I didn't have enough money to buy it. DOE took it.

MR. HARRISON: For the 15 years that I lived here nothing has been done, and I have come to a lot of these meetings. We filled Star Hall one year. The NRC was there, they built us a book that was an inch and a half thick and it cost us 200, $300,000. Are you using that at all?

MR. METZLER: We try to build off of other information.

MR. HARRISON: That is good. How much will this cost us?

MR. METZLER: It will be more than a million dollars.

MR. HARRISON: And still on a windy day, it is your pile now, on a windy day that dust is blowing through this valley 12 years later. I would like to see you keep it wet on windy days. It belongs to you, I would like you to start taking care of the pile now while this decision is being made.

Forever. That is a long time. You know, they always put costs at the bottom. And oh, of course, then there is cost. But how come I always feel like when it gives to Washington that is at the top.

Thank you.

MR. METZLER: All right. Thank you, Bruce.

Document #95 Carlson, Jim Individual

MS. RYAN: Jim Carlson.

MR. CARLSON: I am one of the lucky people. I moved here in 1999, so I missed most of the talking about this. But it looks like I am going to get in on the tail end.

In the Draft EIS there is a part that talks about river migration and flooding, and the way I interpreted it that the outcome would be unpredictable if this happened with the big flood. That along with my mathematics, looking at some statistics, we are well past the 100-year rain. I think the last 100-year rain was like 130 years ago or something. So it is coming.

The other thing, I just think that the whole thing looks like we are playing a great big game of Russian roulette. We keep rolling the dice, and we keep going and going, and if you look at the different things that have happened just in the last six months in the world, we are running out of time, we are going to have to quit talking and start doing. I agree with most of the comments that have been made about to move it north and to move it now. So anything we can do to get that done, I would appreciate it.

MR. METZLER: Thank you.

Document #96 Campbell, Jack Individual

MS. RYAN: Jack Campbell.

MR. CAMPBELL: My name is Jack C-a-m-p-b-e-l-l.

Just a very brief comment. I am speaking tonight as President of the Castle Valley River Ranchos Property Owner's Association. I realize that is a very impressive title, but the Castle Valley Property Owner's Association actually represents all of the developed properties in the incorporated municipality of Castle Valley, which I believe is actually the second largest municipality in Grand County.

And the very simple comment that I want to make is just to encourage you to move the pile by rail to either Klondike or Crescent Junction.

Thank you.

MR. METZLER: Thank you.

Document #97 Hackley, Pam Individual

MS. RYAN: Pam Hackley.

MS. HACKLEY: Thank you. My name is Pam, P-a-m, H-a-c-k-l-e-y.

I am speaking as a citizen and I echo Jim Carlson, I guess I missed a lot of the history on this.

And so my comments are after reading what I could of the EIS so far is to move the tailings out of the floodplain for all of the reasons that were given prior to my testimony. And it seems like the Klondike Flats location is the most reasonable, although I am not sure that you have done all of the studies necessary to determine that at this point. And I would hope that, assuming that Washington people make the decision to move the tailings away because so many people and so many agencies and states are going in that direction, that you would keep us informed and involve the communities as to exactly how you would do this remediation off-site.

Thank you very much.

MR. METZLER: Thank you, Pam.

Document #98 Lippman, Bob Castle Valley Town Council

MS. RYAN: Bob Lippman.

MR. LIPPMAN: Bob Lippman, L-i-p-p-m-a-n.

My name is Robert Lippman, I am on the Castle Valley Town Council, and formerly represented the Friends of the River, involved in an issue of uranium mining in the Grand Canyon just downstream of us.

I would like to say that tonight Castle Valley in a historic showing of solidarity with the Grand County Council overwhelmingly favors the expeditious moving of the Atlas pile north to a stable, engineered, prepared site, probably by rail, considering that again water is messy, water rights are very precious in the Colorado River, and very contentious, and contaminated water would have to be dealt with in a slurry line.

I would also like to say that what we are hearing today, I think from everybody in the area, is again another chapter in the emperor wears no clothes. This matter should have been remedied decades ago, as we have heard. Every month that we wait or delay increases the costs exponentially of remediation, and studying the matter endlessly will not change the most basic observations and essential conclusions that are to be drawn. The placement of the tailings have permissively violated a myriad of federal pollution control laws, going back to the 19th century, and into the modern era of pollution regulation, along with defined common sense. The impacts are not limited to local effects, as we have heard, but extend regionally and downstream, potentially affecting tens of millions of Colorado River water users, meaning culinary uses, agricultural, and we are looking at the produce, four seasons breadbasket of the United States, and I shouldn't have used the word bread, but produce basket of the U.S., and as we have heard, recreational use.

And there are also implications for international and treaty matters downstream, as well as ecological matters involving everything from sediment and beaches, to the now unproductive delta of the Colorado River.

There is a larger responsibility here, and I think everybody in this room recognizes that. Long-term containment of the tailings is impossible, in the present floodplain of an active hydrological and geological system.

Capping the tailings in place will do nothing to remediate the groundwater and surface flow problem.

The no action alternative will further allow both groundwater and airborne particulate and radon impacts to be exposed to the public.

Slurrying does again raise questions about water both before and after the remediation.

The only rational and justifiable option is again move the tailings to a stable engineered site by rail.

And I would like to add, reject the White Mesa slurry alternative due to transferred impacts upon local native American communities, and sovereign trust lands, and this also raises issues of environmental justice.

In regard to my first comment tonight, I would like to say that I think this issue of remediation of Atlas could really act as a focus to bring our communities together in an unprecedented way, and

start to really look at sustainability and appropriateness of human activity in the Moab region, and work together toward those ends and measure our conduct by those ends.

I would urge local governments to act now to prevent the next uranium rush, which is just around the corner. Three more mines have opened in the Paradox area east of here, and if we prepare now and think and plan about this in a sustainable way we won't be here 20 years from today looking at how to remediate another pile.

Thank you.

MR. METZLER: Thank you, Robert.

Document #99 Angel, Bradley Green Action for Health and Environmental Justice

MS. RYAN: Bradley Angel.

MR. ANGEL: Good evening, my name is Bradley Angel, and I am here tonight as a concerned citizen, and I am also here as director of an organization called Green Action for Health and Environmental Justice.

At Green Action we work throughout Utah, Arizona, Nevada, California, and a lot of western states, helping communities protect themselves from pollution. And that is why I am here tonight, both on behalf of our organization and as an individual.

And in our organization we have members, a lot here in Grand County, in Blanding, in Bluff, and the White Mesa Ute community, among Navajo communities south of here, and also many communities that are both along the Colorado River in Nevada, Arizona, California and in communities of tens of millions of people who rely on Colorado River water.

And for all those reasons, we support all of the folks who have spoken tonight calling for the immediate, prompt and safe removal of the tailings and the toxic waste from the banks of the Colorado River.

But I also want to focus my comments tonight on a related issue that goes to one of these supposedly reasonable alternatives being considered.

You know, somebody already mentioned this, and as we all know our country is at war overseas. Our citizens are dying and killing supposedly to spread democracy and justice. Unfortunately, the Department of Energy in this process has violated the very principles of democracy and justice, and I am going to document how that is.

Number one, when this process started back in terms of the Draft EIS process on December 20, 2002, the DOE put out a Federal Register Notice. Those documents completely omitted the existence of the White Mesa Ute community. The map distributed by DOE at that time completely omitted the existence of the White Mesa Ute community. It had East Carbon, Crescent Junction, Moab, Blanding, but funny how White Mesa just wasn't there.

On January 22nd and 23rd the DOE had scoping meetings, I attended three of those, I believe, and still on the big map on the wall White Mesa did not exist, according to the reality presented by the Department of Energy. And they got an earful about that from Tribal members and other members of the public.

On September 14, 2003, here in Moab, and not on the Ute Reservation, but here in Moab the DOE held what they called the Tribal consultation, and myself and several other other Moab residents joined Tribal members from the White Mesa Ute community, and the Ute Mountain Ute Tribe, and other Ute Tribes at that meeting. And it was an incredible meeting, and the Tribal governments themselves, along with the Tribal members, made it totally clear that the law requires not just consultation, but meaningful consultation. That sacred sites that are present at White Mesa and are abundant there need by law, and by right, to be protected. And they demanded that White Mesa be excluded just as the DOE had just properly excluded East Carbon and Green River. I am really glad that East Carbon was excluded as a site. Those people get dumped on already too much.

I am glad Green River was excluded, it was totally an inappropriate site. It is outrageous that White Mesa is still under consideration. It is actually closer than those other communities, and it has other very profound cultural, religious, traditional and sacred site issues.

And then on November 30, 2004, the draft EIS was released and again the Department of Energy claims that they have to look at all reasonable alternatives. And I am here to ask what is reasonable about a proposal from International Uranium Corporation to take the radioactive and toxic waste from Moab, use incredible amounts of water in a slurry line, an 85-mile line, and dump the waste on top of the sacred sites and burials of the ancestors of the Ute people.

Tomorrow the DOE will be formally presented by White Mesa Ute community members with a formal complaint documenting how you are violating the Executive Order on Environmental Justice, the Federal Sacred Site Protection requirements, Tribal consultation requirements, and federal statutes on the protection and preservation of traditional religions in Native Americans. Don't wait for the EIS to drop White Mesa, start doing the right thing so we can all work together on the true solutions that will protect everybody.

Thank you.

MR. METZLER: Brad, thank you.

Document #100 Hedden, Bill Grand Canyon Trust

MS. RYAN: Bill Hedden.

MR. HEDDEN: It is Bill Hedden, H-e-d-d-e-n.

I am here tonight as a local citizen and also as Executive Director of the Grand Canyon Trust. We are also preparing comments on behalf of more than 150 conservation organizations around the United States.

I hope the DOE appreciates -- we are very glad that you are here, by the way, and I hope you appreciate what an exercise in democracy this is for us, because we were doing this now for 12 years, and we still got the pile sitting there, and we just saw comments go from the governors of Utah and New Mexico and Arizona, and Nevada and California all telling DOE that any solution that leaves the tailings by the river is completely unacceptable. So for us to be here and feel that our voices make a difference is truly an expression of hope and faith in America, so I hope you take it very seriously, and I know that you do.

I think when everyone is in agreement, like we have been so far tonight, it is very easy to forget that there is actually a document that is sitting there that is what we are talking about, and it is a document that is going to Washington, and it is only what is in there that is going to matter, and there are two really big fundamental problems with that document as far as I am concerned.

One is the failure to really understand what the time, what 1,000 years is, and what kind of changes are likely to happen in this society, and in the Southwest over 1,000 years.

And the other which is kind of interrelated with that is a real misjudgment of the Colorado River, both how important it is to society, how important it is going to become during the next 1,000 years, and how violent and unpredictable it is. And these things kind of all connect with one another.

If you imagine the ancestral native American people who lived here 1,000 years ago, and try to see how they would picture the Southwest, whether the people who did the Moab panel out there would envision Moab and the way we use the land around here today, with the Hohokam people in Phoenix, if they might have understood what the Central Arizona project was and what Phoenix has become, or Southern California, you can get the beginnings of an idea what a 1,000 years means.

100 years ago the Colorado flowed free into the Gulf of California, and today we have spent more money per gallon diverting and using that for human use than any other big river in the world, and not a drop of it gets to the ocean anymore. Every bit of it is used by human beings for our drinking water or for our agriculture for some of the most highly valued food crops in this county.

1,000 years from now people may reverently be taking water out of that river with a thimble, and yet in the EIS we read that it is okay that the contaminants are in the groundwater because it is salty and so it is a limited use aquifer, and really there is no need to clean it up, but DOE will agree to do some active cleanup because it is going into the Colorado, we need to make sure that some local fish right next to the pile don’t get poisoned.

Well, we are talking about 1,000 years. What is the community of Moab going to look like 1,000 years from now, how much of our drinking water will be withdrawn from the Colorado right here? Because we are already seeing the limits of the groundwater that is available to this community. What will be the uses downstream? If you haven’t been reading the newspaper they are starting to fight over the Colorado big time as Lake Powell disappears, and we need to look at a term that is not in any way addressed in the EIS, and this is a dramatic failure of this document.

The other place where the failure really becomes apparent is the failure to consider what big floods in the Colorado look like.

If you look at the site from the air, you will see that no matter what happens with subsidence in the Moab Valley, the pile will always be directly in the path of the river coming out of the canyon, and if you have seen photographs of the floods in 1917, see what that looked like, and then realize that in 1884 the flood was 60 percent higher than that, you will know the reason, that the tailings pile is sitting in the middle of an alluvial fan. The Colorado blows through that place, it scours the ground down, and results in a very, very real prospect that the Colorado River will destroy the tailings pile during the course of the regulatory time frame.

And here is where we reach one of the most surrealistic parts of the EIS where the DOE describes a scenario which the pile is going down the river, and it is spread for 100 miles throughout the riparian zone up in the bushes and in the river channels and all through Lake Powell, and concludes there is no risk to human beings. This is the kind of thing that is all over the EIS, and it needs to be corrected in the EIS so you will be adequately finding the preferred alternative, which is to move it to Klondike.

Thank you.

MR. METZLER: Thank you, Bill.

MS. RYAN: Mary VonCoche.

MS. VONCOCHE: I don't have a comment.

Document #101 Oblak, Denise Utah Guides and Outfitters Association

MS. RYAN: Denise Oblak.

MS. OBLAK: Denise Oblak, O-b-l-a-k, D-e-n-i-s-e.

I am here speaking as an individual citizen, a business owner here in Moab, and also as president of the Utah Guides and Outfitters Association to support the moving of the tailings pile, preferably to the Klondike Bluffs area. I agree it is the closest, the least risk I think is involved in transporting it there.

I think one thing that hasn't been mentioned tonight, I won't go over all the other very good comments, is the possibility of the earthquake fault becoming active, and if that pile were capped in place, I realize that it is a remote possibility, but then, you know, big flows happen on the Colorado, what if you had an earthquake event, which actually did happen here in the late '80s, that could be felt in houses here in Moab. So if you have got a cap on that pile, that cap is compromised, what if you had a flood at the same time, all that money that is spent capping it in place, is for naught.

And I know there have been other situations down in Monticello where you have moved a pile once, and then had to move a pile again, and just spend the money, do it right, move it now.

Thank you.

MR. METZLER: Thank you, Denise.

Document #102 Wait, Jeannine Individual

MS. RYAN: Jeannine Wait.

MS. WAIT: That is J-e-a-n-n-i-n-e, W-a-i-t.

I know that I am preaching to the choir here, but one of the first things millions of annual visitors to Moab see is the towering tonnage of toxic tailings. A roadside legacy of our uranium mining past, and a clear sign that our present government is not concerned with the health and safety of our community, our many international visitors, or the millions of downstream citizens who depend on the water in the Colorado River.

I am in favor as everyone else has been of moving the Atlas tailings pile to the Klondike area, which would cost less than a couple of days expense of continuing the unpopular war on Iraq.

Thank you.

MR. METZLER: Thank you.

Document #103 Fields, Sarah Sierra Club

MS. RYAN: Sarah Fields.

MS. FIELDS: My name is Sarah Fields, and I am speaking as a fairly long, not too long, but it has been a number of years here in Moab, and since 1987, have been working on this Moab situation.

And I am also speaking on behalf of the Glen Canyon group of the Sierra Club.

Everyone has made incredibly wonderful and informative comments, so I will try to cover some of the things that perhaps haven't been covered.

One thing I want to point out is that we are operating under Uranium Mill Tailings Radiation Control Act of 1978, and when Congress passed that Act, they did a couple of house reports, and those house reports indicated what their intent was when they passed this Act.

One of the things they indicated was that they expect that the public is to have a strong role in the selection of any remedies through procedures provided by the National Environmental Policy Act, and is expected that the Secretary will give full consideration to the wishes of the public as is expressed through those processes.

So congress intended that our comments today count, and they count big time. We are not talking about money, we are not talking about the various technical aspects of the situation, we are talking about the considered wishes of the public.

Congress also said that in some cases the department will remedy inactive tailings hazards, and the tailings will be removed from the original processing sites and disposed of at more suitable locations.

Doesn't that make sense. So I think everybody said that the original processing site is not a suitable location. And many people have said Klondike Flats, some people have said Klondike Flats or Crescent Junction. We have felt that Crescent Junction is the better site, and the tailings, if moved there, would be the safest, and away from human intrusion, and would be the least likely spot for the contamination of the environment.

And a couple of reasons for that is the shale in the Crescent Junction area is much deeper, there is not the kind of impact from tourists, from people running around on ATVs and bicycles, the way there is in Klondike Flats. And also Klondike Flats is right next to or close to the airport. It is also close to the refuse disposal site.

So particularly during the remediation period, if it were to be moved there, there would be a tremendous amount of impact in that area. And we are looking for the most isolated site, and that is the Klondike Flats site -- I mean the Crescent Junction site, right, and by rail. Obviously transportation by truck would have enormous negative impacts on the traffic on Highway 191, and would probably severely impact that roadway and it would, in the end, it would just have to be replaced, and I don't think the DOE has considered that into their financial calculations.

Another concern that I have is that if the DOE decides to leave the pile in place here in Moab, that that might not happen for years and years and years. There is going to be still the question of a settlement of the tailings pile. The DOE does not really know how long that is going to take. So you are talking about maybe eight years, 10 years, 12 years, 15 years, maybe never.

Thank you very much for the opportunity to comment.

MR. METZLER: Thank you, Sarah.

MS. RYAN: Bob Sutters. No Bob Sutters, okay.

Document #104 Lowe, Janet Grand County

Janet Lowe.

MS. LOWE: Janet, J-a-n-e-t, Lowe, L-o-w-e.

In the 14 years I have lived in Moab, I don't believe I have ever seen this county unify on any issue, and it speaks volumes to how important this issue is that we are unified as much as we are.

There were 22 waste piles located along waterways. Twenty-one of them were moved because they were considered too dangerous to remain in place. Yet it seems there are people or agencies who want us to believe that this last one is safe enough to be capped in place, when actually this pile, one of the largest and potentially most toxic, is near -- is probably one of the least stable of all of the 22 water piles. It is situated on one of the most powerful rivers in the west, and the

river has apparently during the last 40 years migrated 300 feet toward the pile, not away from it. I simply don't buy that this pile is safe enough to cap in place. And I think the only reason that it would remain on the banks of the Colorado River is money. But if the government thinks it would be costly to move it now, I have to ask how expensive it would be to clean up the length of the Colorado, from here to the coast. I have to ask how expensive it would be to reclaim millions and millions of acres of agricultural lands that use that water. And I have to ask at what cost in terms of the safety and health of the millions of people who live downstream in Arizona, Nevada, California, and Utah.

I don't believe that the government has a right to gamble with so many lives and so many economies, in the event of a catastrophe, and today perhaps more than any other time in our history we know that catastrophes do happen.

You have spoken of uncertainty and many issues related to this pile and to the river. And because of these uncertainties there is only one option. Move it, move it the shortest distance. Move it in the safest way possible, to the most secure place possible. And do it as soon as humanly possible.

Thank you for your time.

MR. METZLER: Thank you.

Document #105 McCleary, Jeff Individual

MS. RYAN: Mr. McCleary.

MR. McCLEARY: M-c-C-l-e-a-r-y.

I would like to make a couple of comments on the draft EIS as well. It does note in several places that Utah wants the pile moved due to river migration issues, but doesn't note that Grand County has previously expressed river migration issues in a series of correspondence between Grand County and the Nuclear Regulatory Commission in the 1996, '97 time frame. And there was some data that was submitted by Grand County in conjunction with that series of letters. One was an air photo study that we did comparing photos taken on June 30th of '75, and August 17th of '95, so a 20-year time frame. Those photos were digitized and rectified in our info, and indicated the river moving toward the pile.

We also did a little sediment-logical study looking at heavy minerals in the Colorado River. The idea being that Atlas at the time was claiming that Courthouse Wash and Moab Wash had sufficient strength to essentially overpower the river and force the Colorado to the south away from the pile.

Well, if you look at the sediment type in the Colorado River, and the sediment types coming out of Courthouse Wash and Moab Wash, and then you could sample sediments on the north side of the river, on the pile side of the river, you should see if indeed Moab Wash and Courthouse Wash were overpowering, you should see a heavy minerals sweep that was characteristic of two streams, rather than a heavy mineral sweep that was characteristic of the Colorado River.

So it was a very simplistic little thing. We just took some small samples, magnetite was the easiest thing to look at because literally you can pick it up with a little kitchen magnet. And as you would expect, the Colorado has a high magnetite content that is eroding through Precambrian igneous metamorphic rock at the headwaters, and carries that material along downstream. Courthouse Wash is almost clean of magnetite. You are draining a pretty good-sized area of mesozoic sandstones that have a lot of those heavy metals oxidized and leached out of them so you don't see much.

Moab Wash a little bit in between, because you are draining an area that has Cutler sediments, and they do contain some magnetite, but far less than what we see in the Colorado River.

And Peter Haney and I put down a little -- who was a county councilman back in that time frame, and I kind of volunteered some of my time to work with Peter, and we went out and checked McClasky's property on the north side of the river, and put down a little hand auger boring, a glorified posthole digger that Peter and I welded up in his back yard, and the sediments there have a magnetite content that is much more similar to the Colorado River, than either Moab Wash or Courthouse Wash. So you would expect some input of sediment, you would not necessarily expect to see a total match with the Colorado River, magnetite sweep, but what we are seeing is a strong indication that the river has migrated back and forth across the valley through geologic time.

So that bit of data of course was available since '96, and I guess I am a little bit upset that that information, you know, conflicting opinions, whatever, did not necessarily make it into the EIS. It does acknowledge uncertainties, but it kind of looks like maybe some selective data has been utilized.

Another comment on the geologic hazard evaluation section of the draft EIS does not discuss the formation of breccia pipes due to salt dissolution. It is a more localized feature than the general ongoing salt dissolution that is occurring. You usually see blocks of overlying stratigraphic units that are dropped down in a coarse breccia, angular material in a fairly circular pipe like structure. These are very common all through the Paradox Basin, you see them down in Lochart Basin, you see them along the southeast margin of Moab Spanish Valley, and the closest one to the Atlas site is right across the street at the entrance to Arches Park. And it is a probability argument, would one of these things form at or under the pile, it is hard to say, but it is something that has been studied, it has been known to the NRC, they are supposed to be a cooperating federal agency, and it doesn't show up in the draft EIS.

And I think one of the problems might be that there is kind of a lack of a systematic discussion in the EIS features, events and processes that could impact the ability of the Moab site to adequately contain the waste.

30 seconds, I will have to go fast.

I think that a disciplined, systematic look at features such as the breccia pipe and the faults, processes such as river migration and salt dissolution and events such as even climate change, the best models now are that in 600 to 1,000 years we might be moving into a glacial, which would mean more larger floods and more frequent floods on the Colorado, and a systematic look at all of the things that could affect that site I think would benefit the document.

Thank you.

MR. METZLER: Thank you.

Document #106 Thuesen, Jim Individual

MS. RYAN: Jim Thuesen.

MR. THUESEN: Thank you. Jim T-h-u-e-s-e-n.

I had a couple ideas when I came tonight, but I have been taking some little notes and this meeting is inviting informed citizens to come and speak. Well, I don't know what your count is, but I found 25 people say move the pile. I haven't found anybody say leave it where it is. Now there are differing opinions. I talked to one of the old-timers one time who said, all this mining we did, he said there wasn't any problem, and after about two minutes of coughing, he said when it was handled right. Well, let's handle it right. That is the problem, some of the miners, a lot of miners, have big problems, because they were in unventilated mines. That was the biggest thing. The guys who came out all right, they said, the mines they worked in had free-flowing air all the time. So that is something that we didn't realize at the time. The government wanted uranium, we gave them uranium, and it caused a lot of problems. Now we are asking the government to do the opposite. We are asking them to move this uranium, and it is not the uranium so much, it is all the rest of the stuff that goes in there. We want them to move it, and we want them to move it someplace safe for everybody, not just for us. We don't use that water. The closest I get to that water is upstream or way downstream, because I don't want to swim outside that tailings pile.

There is a lot of things we have talked about, the water issue, the river issue. I can't believe that we can say that pile will not some day be washed away, or part of it washed away, and it won't take much. And what happens if it is washed away? So we are talking about 26 million people in the U.S. The first thing that is going to happen is if the integrity of that pile is broken by the river, it is going downstream, and then I see these pumps just going off, bang, bang, bang, all the way down through every lake, every dam, the pumps are going to be shut off. And where is it going to go? It winds up going down to the Sea of Cortez, which is where by treaty with Mexico, some of it is supposed to go, and I don't know if they have gotten any in the last number of years, but when they get it, it is going to be all bad. The Sea of Cortez, I don't know how many of you go there, I love Baja, I am going down there in May, the Sea of Cortez is one of the world's greatest fisheries. It is where many, many species breed only, it is the only place where certain species of fish breed. And if we set this stuff to go down there, what is going to happen to them. It is not just national politics, it is international politics, Mexico, South America, everywhere below here is going to be affected if there is a problem with this tailings pile. And there is nothing we can do about it, except move it.

I am sorry, I just can't believe that we have ever gotten smart enough or strong enough to beat Mother Nature. Look at Florida, look at St. George, look at Florida, every year they get the hurricanes, and I want to tell you 120 or 130,000 c.f.s. in the Colorado River is going to put that all to shame, because it is going to take this out, it is going to change the look of the Grand Canyon, because that is how it was made.

I kind of think the real easy way to change this is if there is somehow we could divert the flow of the Colorado River, change it to go up through Salt Lake City and out to Washington, D.C. and be done, no problems, everybody would have a good time. Otherwise, you know, we have this -- you cap it in place, what do we have, we have another tourism thing, the Moab pyramid, the glowing pyramid of Moab. If you get rid of it, we might actually be able to use that land for some good reason. I know the golfers all say a golf course. I am thinking about a river park or just so many things we could do with all those acres.

And I am being told I am done, and I can't think of anything else I want to say, except for all of our sakes, please move it.

Thank you.

MR. METZLER: Jim, thank you.

MS. RYAN: Jim was the last person on the list who signed up to comment. Is there anyone who would like to comment, can I see a show of hands?

MR. METZLER: Let's take a five minute break, we have been going for awhile, and this is a very important subject, you are all serious, but let me just change the mood just a second. I was so worried about staying on time tonight and really being efficient with all of your time, and I keep looking at the back of the room and the clock says it is only 6:48, so -- off the record.

(Off the record).

MR. METZLER: All right. We are back.

Document #107 Regehr, Ron Individual

MS. RYAN: I would like to begin with Mr. Ron Regehr.

MR. REGEHR: Thank you for your having this tonight. R-e-g-e-h-r.

I want to thank everybody for coming here tonight. But I notice there are some people missing. John Mathis, our local representative is not here. Bob Bennett, our senator is not here. Warren Hatch, our other senator isn't here. They are the guys that are going to make this thing happen if we prod them enough. So our job as well as attending these presentations and impact statement reports, talking to each other, writing letters to the editor is to write letters to the people who are going to vote on this. Let them know where we stand, let them know how we think. Ask these people to give us a copy of our comments so we can send them to our elected representatives, because they are the ones that will ultimately make the decisions that will affect our lives. Rest assured, if this tailings pile was on the side of the Potomac it would have been moved 10 years ago. If it was in Crawford, Texas it would be moved next week. But it happens to be in Moab and nobody cares but us.

So our responsibility is to take charge of our lives, to do what we have to do, to get this tailings pile moved. Showing up here is a good sign, but we have to go farther than that, we have to do more. We can't stop and think, gee, I missed out on dinner, I am going to have a late dinner but I

said something. We have to continue, we have to continue putting pressure on the people that make the decisions.

And thank you very much.

MR. METZLER: Thank you.

Document #108 Graham, Audrey Individual

MS. RYAN: Audrey Graham.

MS. GRAHAM: Audrey Graham, just like the cracker, G-r-a-h-a-m.

I just want to thank the DOE for bringing us together like this, like I have never seen before, bringing our community together, and I would love to see us continue working like this, but I hope it is not over something this serious.

We the public in this community are really stuck with no ability, practical, financial or otherwise, to deal with this pile that is right next door. We also are really -- we have no financial, practical, or actually responsibility, to take care of the health and safety of the 25 million people or whatever, downstream. So as the scientists and politicians fight this all out, what we need is action, and to me, we have come up and done our part, we have stepped up to the plate and done our part. And we are not asking to move this pile to Connecticut or to New Jersey. We are willing to pick up this pile and keep it in our community, and I am happy that geology has given us what the scientists are telling us is a safe place to put the pile. We didn't do that, but I am just happy that we have that, and just think that we need to be given some credit for doing our part as much as we can and finding places to put it. And I definitely think that the only ethical, sane thing to do is to move this pile.

With this EIS not having a preferred action, it does appear or sort of appear to me that it leans heavily on capping in place, and that really worries me that this is the report that will go to the decision makers.

My understanding, it has been brought up before, that there are something like 22 similar sites, 21 of which have been moved. Why is this site less important? Why are we less important?

Thank you.

MR. METZLER: Thank you, Audrey.

MS. RYAN: Those are the only two I had signed up.

Document #109 Stolfa, Dave Individual

MR. STOLFA: My name is Dave Stolfa, S-t-o-l-f-a, and I am a concerned citizen. And I guess how many here, raise your hand if you are in favor of moving the tailings. How many want it capped in place?

Let the record show that I think it is unanimous, or was there one vote. It wasn't unanimous, but it was very highly weighted towards moving it.

I want to talk about the risks and uncertainty of leaving it in place. These deal with questions of geology and hydrology, and I know some people in the community of both those fields, and they are not exact sciences, they have only got histories of 120 years of direct evidence, of how the river flows. They only have sunk drill holes in a certain number of sites, or bounced sound waves off the subsurface. That is going to change over time.

If you look at what has happened to citizens in Utah in the last two generations, 1950s on, nuclear testing has affected us, and now we say, gee, we shouldn't have done that. Radon and mining has affected citizens. And now we say, oh, the standard practice is we shouldn't have done that.

My question is, what are we going to say in 20 years, oh, gee, we shouldn't have capped that pile. It was common sense we should have moved it. We think we have all the answers today. I think it is still very uncertain. If there is uncertainty we ought to take the safer route and move the pile. I don't really have an issue, I would say probably Klondike Flats, by train, would be my solution. I just am against capping it in place.

Thank you.

MR. METZLER: Thank you.

MS. RYAN: Is there anyone else who didn't sign up?

Document #110 Darke, John Individual

MR. DARKE: D-a-r-k-e, John.

I appreciate that this is an on-the-record proceeding. And in an earlier portion of the NEPA process, I made the comment that, let's see, that I felt it was fair and it would be informative for the DOE staff if they could hear, you know, the suggestions.

One other person has responded, I believe a DOE contractor, and said we don't want to intimidate with the report. I think we have learned tonight, that it wouldn't have hurt.

I would like, if it is acceptable to direct my comments on the record, in the context of this NEPA proceeding directly to this Secretary of Energy, and the appropriate Assistant Secretary, who will be delegated the responsibility with respect to overseeing the immediate decision-making process, which supposedly the Draft Environmental Impact Statement will impact. It is a decision-makers' document. I have reviewed thoroughly the DEIS, and I notice that it refers in many places elsewhere, if you want more information about this, go over, for example, to the site observation work plan. That is a three-volume set. I brought one volume, I didn't want to bring it up here, and cumulatively, it is about like that (indicating), with a whole bunch of plates that are about like this (indicating), and that document in turn refers to many other substantiations of the work product. Mr. Secretary, never since approximately 1970, where I appeared pro se, as I am here, have I ever seen such a disconnect between the Draft Environmental Impact Statement, and

the technical material compiled by the DOE contractors, the DOE staff, that shows up in some, for example, Stoller's site observation of the plan, that three-volume set. It shows up -- I have never seen a more unsupported document. When you want to see whether a statement which is made is true or not, or there is a material misstatement of fact by omission or commission, normally you will be pointed by a footnote.

And, Mr. Secretary, another thing that you need to take into consideration, is that never once from 1959, when this site was first licensed, through 1975, when the AEC relinquished responsibility for the regulation of this site to the NRC on January 18th of that year, up through the regulation by the NRC, of the licensee Atlas, through Price Waterhouse Cooper, who took over the site at the behest of the NRC, supposedly as a licensee, but probably as nothing more than a contractor, and through the arrival in town due to an amendment of the Atomic Energy Act, the Uranium Mill Tailings Radiation Control Act of 1978, by a private bill, the arrival in town of the DOE. I have since the '70s paid attention to some of the details, but most particularly, to the process, and the processes revealed, it is revealing tonight, that this is a NEPA process, that never once was the licensee representative a member of the public pro se like myself, a regulator, or as far as I know, no one outside of perhaps some civil proceedings somewhere, has been required to raise their right hand and swear to tell the truth and nothing but the truth, so help me, under the threat of perjury. This has never happened.

When I first became curious about this site back in 1987, I applied for a hearing, and it would have been a formal hearing, but back in Washington, and I have seen the paperwork, the decision was made that there is a proposed rule, so we don't have to have anybody get up and raise their right hand, and the licensee agreed, the licensee in the first place had asked for the hearing, is when they shut down the site. And from that day on, no one, DOE personnel, DOE contractors, all the way back, nobody has been required to go before a quasi-judicial body, or a judicial body outside of a civil proceeding, and raise their hand and say I am going to tell the truth.

Back to this. I have now so many unsubstantiated claims. I feel that regardless of the decision whether to move it, or to cap it in place, that this community, and I don't speak for this community, I am asking you, Mr. Secretary, there must be an opportunity for accountability, for transparency, there must be a forum in which your persons must get up in public and swear to tell the whole truth and nothing but the truth.

One more point, and I am through. There is an oversight process, once the DOE makes the decision as to whether to move it or cap it in place, the NRC will once again be in a position to concur with the Secretary of Energy's decision-makers. They in a way will have oversight over the DOE. The NRC for years, since 1975, and the AEC before that, has avoided having to get up and raise their right hand. And frankly, Mr. Secretary, I would respectfully request, as I understand it now, that the same NRC personnel that allowed in their -- through their regulatory responsibility to get to this past, will have oversight responsibilities over the DOE. I don't think that is appropriate, and I would respectfully request an alternative to that situation.

I have the utmost respect for the current project manager at the NRC, Dr. Myron Fleigel. He is a good person, he has a good technical team, but I feel that there is a conflict of interest, and it is an institutional conflict.

MR. METZLER: Thank you, John.

MS. RYAN: Anyone else who would like to comment?

Document #111 Cozzens, Dave Individual

MR. COZZENS: Dave Cozzens, C-o-z-z-e-n-s.

I don't have much to say, but I will say the same thing I have been saying for about the last 10 years since this fuss first exhibited itself. I want to see the tailings pile moved probably as much as anybody does, and that is as soon as it is proven that it is safe to do so. Anybody who has any doubts about the validity of my concerns should look up the article called Radon Daughter, and study what it will do to a biological body, and you might take note, and my facts could possibly be in error, but I am very certain that the first time that radon was ever detected in the monitoring system out there at the mill was when Price Waterhouse Cooper came here and began to dry out the pile. And I hope, I don't know exactly, I am not up to date on what is happening out there right now, but I hope that they are not drying out the pile anymore.

And I certainly would like to see it moved, if it can be done safely. I am not sure that it can. I am a lot more concerned about the people in this valley, including my family and my friends, than I am about any number of the millions of people downstream or any fish.

Thank you.

MR. METZLER: Thank you, Dave.

MS. RYAN: We have time for one or two more comments. All right. I would like to encourage everyone to give us their full written comments, at the back of the room there is a comment box, and again on this sheet, there are some more copies back there, it gives you the ways you can comment. Was there one other person?

Thank you.

(Public hearing concluded at 8:45 o'clock p.m.).

REPORTER'S CERTIFICATE

I, Joseph J. Rusk, do hereby certify that the foregoing is a true transcript of the testimony given and the proceedings had.

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JOSEPH J. RUSK, CSR, RPR, RMR
Registered Professional Reporter
RUSK & RUSK COURT REPORTERS
Post Office Box 3911
Grand Junction, Colorado 81502
My Commission Expires: 10/10/2006

Appearances

DONALD R. METZLER
PROGRAM MANAGER
U.S. DEPARTMENT OF ENERGY
2597 3/4 Road
Grand Junction, Colorado 81503

JOEL BERWICK

TOBY WRIGHT

DEBBIE PETERSON

WENDEE RYAN

VIVIAN BOWIE

The Draft Environmental Impact Statement (DEIS) Public Hearing held at the College of Eastern Utah, Arts and Events Center Auditorium, 639 West 100 South, Blanding, Utah, on the 27th day of January, 2005, at 6:00 o'clock p.m., before Joseph J. Rusk, Registered Professional Reporter and Notary Public at Large.

* * *

Document #112 Webb, Chris City of Blanding, City Manager

MS. RYAN: Chris Webb.

MR. WEBB: Thank you. I am Chris Webb, C-h-r-i-s, W-e-b-b, I am City Manager for the City of Blanding and am speaking as a representative for the City of Blanding. We are a cooperating agency, and the first thing I would like to say is we appreciate the opportunity to be involved in the process, and it has been a very professional process. One thing we have learned is that there are uncertainties with the whole process of determining what to do with this site, and that the decision-makers that are making decisions aren't all in Washington, that a lot of those decisions on what is included in the EIS and some of the comments that may have been determined to not be viable have not been included. So some decisions have been made already, with respect to what is in the EIS, and in general, and some of those comments and decisions that we don't totally agree with, but in general, we agree with the EIS. First, it appears as you look at the EIS that the first thing you want to try to start to do is to interpret it yourself and make decisions regarding, all right, this is the cheapest, that is the way we ought to go. Well, if that were the case then we would obviously do nothing and leave it in place and DOE would go away. And so we think that it is obvious that just because it is the cheapest, doesn't mean that is the way we ought to go. We are of the opinion that to leave the tailings capped in place does not eliminate the potential damage to the river and surrounding properties. In addition it does not stop the river's continuous move toward the contaminated pile. In our opinion, leaving it in place would only be a temporary solution with little to no investment return tradeoff.

Further, as we look at the alternatives, we don't believe that there is any alternative that provides the same return on the investment that the slurry line option does in the White Mesa mill project, even if I use the alternative not the cheapest. Because aside from the economic impact to benefit the community and benefits of recycling and extracting the remaining minerals, what impact that would have is that the project would tie directly into our water shortage that has been plaguing San Juan County consistently in cycles, and those cycles every time they come around they cost the Federal Government millions of dollars in drought mitigation over the years. I know the City over the last five years have received three and a half million dollars in just one drought cycle, in the City of Blanding itself, and that does not include farmers and others in San Juan County that are affected by this drought that would benefit. One of the things we did, which was not taken into consideration in this EIS, is requested that the investment on that slurry line be considered, and we don't believe that it was given consideration in the least amount, and that it needs to have a return on investment that is not being considered with respect to that line.

The next point I want to make is why are we proposing to create a new site when we have a tailings site that exists? Why create a new tailings site? We don't need to do that. We pointed out in certain counties building a new tailings site, we don't think this makes any sense.

Again, the other thing we wanted to say is that we have been a little bit shocked and somewhat dismayed about the lack of understanding regarding the issues of public safety. We love our neighbors, we love our citizens, and we don't want anybody to get hurt. But emotions are high, there are misunderstandings that are too numerous to mention here tonight, but we have full confidence that the DOE has the ability to provide the necessary regulatory standards to ensure public safety and environmental compliance. Our education from the Utah Department of Environmental Quality, as well as our calls to the NRC, we have become educated and are somewhat comfortable as a city that the environmental -- that the processes can be handled both safely for the public, and the associated risks are minimal if nonexistent.

So along those lines, we encourage a full education program regarding the associated risks so that the public can come to the same conclusion that we have come, with the information that we have received.

Thank you.

MS. RYAN: Thank you, Chris.

Document #113 Frazier, Ana Marie Diné CARE

Ana Frazier.

MS. FRAZIER: Can you hear me? I put my notes in my computer, so my name is Ana, A-n-a, Marie, M-a-r-i-e, Frazier, F-r-a-z-i-e-r. I am from the Navajo Nation, southwest part of the Navajo Nation, and I am here on behalf of the White Mountain Ute, and the Navajos. And the Department of Energy-sponsored Draft Environmental Impact Statements to moving the uranium to the White Mesa mill from the Moab uranium mill, mill tailings will have a greater health adverse impact on the native people who live downwind, downriver and in and around Blanding. All of these people from White Mesa have been voicing their objection to the uranium waste facility at White Mesa for close to 30 years. To increase the volume of the uranium tailings at

White Mesa, especially of the mill, will only increase the contamination of the groundwater, the air and create pollution. Then the air contaminants from any tailings facilities will be downwind and downstream.

People in the Four Corners area have a long history of exposure to uranium radiation causing cancer of all kinds from the uranium production since the 1930s.

Many of the uranium mines in the area are abandoned and were never reclaimed. It appears the Department of Energy and the Federal Government has not learned from the past and has no plans for the natives of the State of Utah to deal with more radiation exposure.

The native people of the area have lived here way before the white man came to this country. There are many cultural sites such as burial places, old dwellings, Anasazi ruins of which we are descendants. There are places where our ancestors fought battles. There are herbs for healing, and downriver from the mill there are offering places throughout this area. The White Mesa mill was built over more than 200 Ute and Navajo and Anasazi ceremonial and burial sites. This is a clear violation of the Historic Sites Act, which was passed in 1935; National Historical Preservation Act in 1966; American Indians Freedom Act, 1978; and the Archaeological Preservation Act, 1979. The Ute Tribe and Navajo Tribal culture don't understand why the white folks will never understand why we preferred the mill site as sacred and want to protect the values that were passed on to us. Our ancestors learned to respect the burial places, the areas our ancestors lived and prayed. Our great-great-grandparents survived the cultures and treatment under the U.S. Cavalry, and by practicing their own little prayers and following the values that were carried on today. It is a way of life. And as long as you live here, as our neighbors, we will continue to voice our standing as to the desecration of the culture and burial sites, because that is who we are.

The value of the future of our children is valuable, and we don't want anything in any form that will harm our people and our living species in this area. We have learned that through our history. The White Mesa mill is almost 30 years old, the lining of those cesspools that are located behind the facility will eventually corrode. The man-made pipe will corrode and there will be spills somewhere, and something will eventually happen and everyone will suffer from the spill to the White Mesa Utes and Navajos and those living downriver.

We also have the White Mesa Utes and Navajos that use our environment. We are opposed to the Draft Environmental Impact Statement, and moving the uranium mill tailings to include White Mesa mill as one of their three on-site facilities.

And thank you.

MS. RYAN: Thank you for that. There was no one else who signed up originally to comment. Is there anyone else at this time who would like to comment? All right.

Thank you.

(Public hearing concluded at 6:50 o'clock p.m.).

REPORTER'S CERTIFICATE

I, Joseph J. Rusk, do hereby certify that the foregoing is a true transcript of the testimony given and the proceedings had.

_____

JOSEPH J. RUSK, CSR, RPR, RMR
Registered Professional Reporter
RUSK & RUSK COURT REPORTERS
Post Office Box 3911
Grand Junction, Colorado 81502

My Commission Expires: 10/10/2006

Document #114 Loux, Robert Nevada Agency for Nuclear Projects

#114, p.1

Kym Bevan

From: Joe Strolin [jstrolin@nuc.state.nv.us]
Sent: Wednesday, February 09, 2005 4:51 PM
To: moabcomments
Cc: Bob Loux
Subject: Comments on Moab Uranium Mill Tailings Draft EIS

Attached is a MS Word file containing comments from the Nevada Agency for Nuclear Projects, submitted on behalf of the State of Nevada, on the Draft Environmental Impact Statement for Remediation of the Moab Uranium Mill Tailing, Grand and San Juan Counties, Utah (DOE/EIS-0355D). If you have questions, please do not hesitate to contact me or Robert Loux, Agency Executive Director, at 775-687-3744.

I would appreciate it if you would acknowledge receipt of these comments.

Sincerely,

Joseph C. Strolin, Administrator
Planning Division
Nevada Agency for Nuclear Projects
Office of the Governor
1761 E. College Parkway, Suite 118
Carson City, Nevada 89706
(775) 687-3744
(775) 687-5277 (Fax)

2/10/2005

#114, p2

KENNY C. GUINN
Governor

STATE OF NEVADA

ROBERT R. LOUX
Executive Director

OFFICE OF THE GOVERNOR
AGENCY FOR NUCLEAR PROJECTS
1761 E. College Parkway, Suite 118
Carson City, Nevada 89706
Telephone: (775) 687-3744 • Fax: (775) 687-5277
E-mail: nwpo@nuc.state.nv.us

February 8, 2005

Don Metzler
Moab Federal Project Director
U.S. Department of Energy
2597 B 3/4 Road
Grand Junction, CO 81503

RE: Remediation of the Moab Uranium Mill Tailings, Grand and San Juan Counties, Utah, Draft Environmental Impact Statement (DOE/EIS-0355D).

Dear Mr. Metzler:

The following are the comments of the Nevada Agency for Nuclear Projects regarding the subject Draft EIS, submitted on behalf of the State of Nevada.

Nevada's immediate interest in remediation of the Moab uranium mill tailings, currently stored on the west bank of the Colorado River, near Moab, Utah, is the long-term protection of the quality of Colorado River water, upon which the existing and rapidly growing population of southern Nevada relies for a large portion of its drinking water.

We agree with the Department of Energy's assessment (page S-48) that, "Selection of the No Action alternative for either surface or ground water remediation would not fulfill DOE's obligations under federal law to protect human health and the environment." The current location of the uranium mill tailings leaves them vulnerable to erosion by the flow of the Colorado River during times of flood, and contributes to contaminants entering surface water and local groundwater.

The On-Site Disposal Alternative, described as "stabilizing and capping the tailings pile in place" (page 1-7), while designed to meet applicable requirements of the Environmental Protection Agency and the Nuclear Regulatory Commission, does not

#114, p3

permanently alleviate the risk of erosion of the tailings pile. And it does not afford the opportunity for permanent remediation of the currently contaminated groundwater. Relocation of the uranium tailings to a suitable alternative site, with appropriate design and subsequent monitoring, would eliminate the risk of future erosion of contaminants into the Colorado River from this source, and would provide for the long-term protection of surface water quality. Additionally, according to the Draft EIS, remediation of the currently contaminated groundwater could be accomplished to meet a standard acceptable to the affected parties.

We appreciate the opportunity to comment on this Draft EIS. If you have questions about our comments, please contact me.

Sincerely,

Robert R. Loux

Robert R. Loux
Executive Director

RRL/cs
cc: Kenny Guinn, Governor
Nevada Congressional Delegation

2

Document #119 Delegation of Utah

#119, p1

United States Senate

WASHINGTON, DC 20510

February 9, 2005

The Honorable Samuel W. Bodman
Secretary
U.S. Department of Energy
1000 Independence Ave. S.W.
Washington, DC 20585

Dear Secretary Bodman:

Congratulations on your recent nomination and confirmation as Secretary of the Department of Energy (DOE).

We write to express the strong and united support of the Utah Congressional delegation for moving the Moab Uranium Mill Tailings Pile from the banks of the Colorado River, and to urge that an alternative accomplishing that objective be selected from the recently released Draft Environmental Impact Statement (DEIS).

The state of Utah, with the strong support of its Congressional delegation, has been working closely with the federal government for more than a decade to reach resolution regarding questions about the tailings pile and its remediation. As you may know, the delegation, with the support of DOE, successfully included language in the Floyd D. Spence National Defense Authorization Act for FY 2001 (P.L. 106-398) that amended the Uranium Mill Tailings Radiation Control Act (UMTRCA) to transfer ownership of the Moab pile to DOE and to direct its remediation.

Contaminants, including ammonia, various metals, and radionuclides, are presently leaching into the Colorado River from the tailings pile, placing threatened and endangered species at risk. We are also concerned that as long as the tailings pile remains along the banks of the river, the migration of those contaminants will continue to threaten not only water quality in the Colorado River, but adjacent wetlands, and groundwater down gradient of the pile. Moreover, the review by the National Academy of Sciences panel, directed to take place as part of the legislation, highlighted the significance of considering the lack of stability, through time, of the existing riverbank site as DOE developed its remediation plan. Geologic data has proven instrumental in demonstrating the extent of the river's migration both under the tailings pile and the Matheson Marsh in the recent past. Consequently, we believe the only appropriate action is to move the pile from the banks of the river.

#119, p2

We believe there is broad support among local, state, and federal stakeholders for moving the tailings pile and we urge you to select an alternative that would result in the moving of the pile from the banks of the river.

Sincerely,

Orrin G. Hatch
U.S. Senator

Robert F. Bennett
U.S. Senator

Chris Cannon
U.S. Representative

Jim Matheson
U.S. Representative

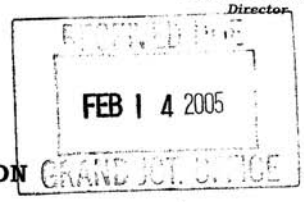
Rob Bishop
U.S. Representative

Document #120 Stafford, Michael J. Nevada Department of Administration

KENNY C. GUINN
Governor

STATE OF NEVADA

JOHN P. COMEAUX
Director



#120

DEPARTMENT OF ADMINISTRATION
209 E. Musser Street, Room 200
Carson City, Nevada 89701-4298
Fax (775) 684-0260
(775) 684-0209

February 8, 2005

Don Metzler, Moab Federal Project Director
U.S. Department of Energy
2597 B ¾ Road
Grand Junction, CO 81503

Re: SAI NV #E2005 -099
Project: DEIS Remediation of the Moab Uranium Mill Tailings, Grand and San Juan Counties Utah

Dear Mr. Metzler:

Thank you for the opportunity to review the above referenced project.

The State Clearinghouse, as per Executive Order 12372, has processed the proposal and has no comment. Your proposal is not in conflict with state plans, goals or objectives. If you have any questions, please contact me at (775) 684-0209.

Sincerely,

Michael J. Stafford
Nevada State Clearinghouse Coordinator/SPOC

Document #127 McCleary, Jeff and Wren Individual

From: Wren McCleary [gravitylow@yahoo.com]
Sent: Friday, February 11, 2005 1:50 PM
To: moabcomments
Subject: DEIS Comments

Comments on Draft EIS – Moab Mill Tailings

Jeff McCleary
367 East Center
Moab, Utah 84532
February 11, 2005

1) The draft EIS fails to include information from two studies conducted by Grand County and submitted to the NRC (a cooperating agency for the EIS) in 1996. These studies were a sediment study that indicated that the Colorado River has migrated across its floodplain in the geologically recent past, and an air photo study that indicated the river has migrated toward the pile between photo dates of 6/30/75 and 8/17/95. The draft EIS should be an objective document. Omitting available, previously submitted information that does not support DOE's contention that the current site is suitable for a disposal cell biases the document and undermines its credibility.
2) The geologic hazard evaluation fails to discuss the formation of breccia pipes due to salt dissolution. Breccia pipes of this type are common in the Paradox Basin, and the closest one to the tailings pile is right across the highway at the entrance to Arches National Park. Again, the breccia pipe issue was known to the NRC (a cooperating agency for the EIS) in 1996 but has been omitted from the draft EIS.
3) The draft EIS lacks a systematic discussion of the "Features, Events, and Processes (FEP's)" that will impact the ability of the current site to contain and isolate the waste. The FEP's methodology has been used extensively at other DOE radioactive waste sites and would be appropriate here. Features would include items such as breccia pipes, which are evidence of past, localized collapse, and faults, across which there can be differential subsidence due to dissolution. Processes would include the migration of the river across its floodplain and ongoing dissolution of the salt that underlies the pile. Events would include local events such as seismic events, as well as regional or global events such as climate change. DOE documents developed for other radioactive waste sites indicate climate change in the next 600 to 1000 years; bringing the likelihood of larger floods and greater erosion.
4) On page 3-6 the draft EIS makes the statement that the site area is covered by alluvium of the Colorado River that is approximately 20 feet thick. I fully agree with that statement. That statement is also 100% in agreement with the data from the Grand County sediment study submitted to the NRC in 1996. However, that statement contradicts DOE's contention that sediment from Moab and Courthouse Washes has overpowered the Colorado River and pushed it to the south away from the pile. The Colorado River is bedded in alluvium in the Moab Valley, and alluvial-bedded rivers migrate across their floodplains. The Colorado River terrace remnant north of the river on the east side of the Moab Valley also demonstrates that the river has migrated in the geologically recent past.

5) Figure 3-1 has been generalized to the point of uselessness. Igneous rocks are incorrectly shown outcropping in Spanish Valley, some anticlines have been linked and others omitted, and none of the information is referenced as to its source so there is no traceability as to where this information came from. Unfortunately, this figure is typical of the document as a whole. The referencing of source information is so poor that the draft EIS must be considered sub-standard. The result is that many of the statements in the draft EIS are reduced to unsupported assertions about the geology and hazards at the site.
6) An objective analysis of the current location of the tailings, perhaps facilitated by a "Features, Events, and Processes (FEP's)" methodology, would likely demonstrate that the site is not suitable for the construction of a disposal cell. The tailings should be relocated to a Mancos Shale area to the north by rail or slurry line.

Document #136 Lippman, Robert Castle Valley Town Council

Law Offices
of
ROBERT P. LIPPMAN

P.O. BOX 1115 • ~~103~~ EAST BIRCH • FLAGSTAFF, ARIZONA 86002
~~(520) 523-6943~~ 928 • (~~520~~) 774-0130

COMMENTS ON DEIS FOR MOAB, UTAH, UMTRA PROJECT SITE,
U.S.DEPARTMENT OF ENERGY

Submitted by ROBERT LIPPMAN January 26, 2005

These are general and conceptual comments on the DEIS regarding remediation alternatives for the Atlas uranium tailings located along the Colorado River near Moab, Utah.

1. The matter should have been resolved and remedied decades ago; each month of delay increases the ultimate costs of remediation, and studying the matter endlessly will not change the most basic observations and essential conclusions that are to be drawn. Several dozen other tailings sites in the Colorado River drainage have already been moved, and yet this high priority site still awaits remediation.

2. The placement of the tailings and their ongoing impacts upon air and water quality, and on human and non-human health and well being, have permissively violated a myriad of Federal pollution control laws and regulations, along with defying common sense. These impacts are not limited to local effects, but extend regionally and downstream, potentially affecting the health and well being of tens of millions of Americans and Colorado River water users (culinary, agricultural, recreational), and the integrity of a vast percentage of America's agricultural production of 4-season produce. There are also international and treaty implications to the downstream movement of pollutants from the tailings. The site is also the source of social, economic and aesthetic impacts on the residents and well being of the Moab area, and the remediation plan needs to ensure the least disruption of local amenities.

3. Long term containment of the tailings is impossible in the present floodplain of an active hydrological (and uncertain geological) system. The inconsistencies and contradictions in government studies raise sufficient uncertainty to warrant moving the pile regardless the statistical cost-benefit estimates. Cyclical flooding and river channel migration will ultimately have a direct impact on the pile, in addition to the present and ongoing effects and releases of harmful materials.

4. Capping the tailings in place will do nothing to remedy the present and long term groundwater and surface flow contamination situation, and the site would still be subject to hydrological and geological forces and changes; the "no action" alternative will further

allow ongoing public exposure to radon and hazardous particulate matter, in addition to the groundwater and river flow impacts.

5. The only rational and justifiable option for mandatory remediation is to

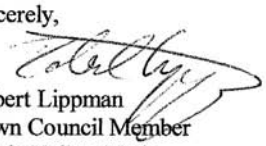
    a. move the tailings by rail to a more stable and prepared site, north of Moab, avoiding disturbance to population centers, and eliminating the problems associated with using precious Colorado River water for such an enterprise, and the end problem of contaminated water at the new site;

    b. reject the White Mesa slurry alternative due to the transferred impacts upon local, Native American communities and sovereign/trust lands (which also raises legal issues of environmental justice); and,

    c. continue remediation and future prevention plans for ancillary sites in the Colorado River Basin and regional drainages.

It is further urged that the DOE expeditiously implement the relocation plan, and ensure that adequate funding is made available for the project.
Thank you for the opportunity to submit these comments; I look forward to the Department's implementation of this remediation mandate.

Sincerely,



Robert Lippman
Town Council Member
Castle Valley, Utah

HC 64 Box 3208
Castle Valley, UT 84532
<robert.lippman@nau.edu>

Document #137 Town of Castle Valley Castle Valley

TOWN OF CASTLE VALLEY, UTAH

RESOLUTION 2005 – 1

A RESOLUTION OF THE TOWN COUNCIL OF THE TOWN OF CASTLE VALLEY, UTAH, SUPPORTING THE RELOCATION OF THE ATLAS URANIUM MILL TAILINGS PILE FROM THE BANKS OF THE COLORADO RIVER

WHEREAS, The Town Council of Castle Valley, Utah shares the resolved concerns of the City of Moab Town Council, the Grand County Commission, the Utah State Legislature, and the White Mesa Ute Community of the Ute Mountain Tribe regarding the disposition and remediation of the Atlas Uranium Mill Tailings Pile; and

WHEREAS, The United States Federal Department of Energy has prepared a draft Environmental Impact Statement identifying and addressing options for remediation of the tailings pile which consists of approximately 12 million tons/8 million cubic yards of radioactive waste and other toxic materials, and which is located on a floodplain adjacent to the Colorado River at Moab, Utah; and

WHEREAS, The Town Council is concerned with the documented air and water quality impacts of the tailings pile on the general health, safety, welfare and recreation economy of Southeast Utah and its residents; as well as being concerned with present and potential water quality impacts and threats to the downstream environment, the health and safety of tens of millions of downstream water users, and the integrity of a significant share of the nation's produce grown from Colorado River water, especially given the real possibility of catastrophic flood, or migration of the river channel towards the tailings pile; and

WHEREAS, because of the geologic complexity of the present tailings site and the historic, erratic nature of hydrological cycles of the Colorado River, there are serious uncertainties associated with the long-term integrity of the remediation-in-place alternative ("capping"); and

WHEREAS, the remediation option of removing the tailings pile by slurry line to an existing site at White Mesa, south of Moab, Utah, will severely impact the health, safety, welfare and culture of the White Mesa Ute Community of the Ute Mountain Tribe, and also raises unresolved questions about the contaminated slurry water and the propriety of using precious Colorado River water for such a purpose.

NOW THEREFORE, IT IS HEREBY RESOLVED THAT THE TOWN COUNCIL OF CASTLE VALLEY, UTAH, strongly supports moving the Atlas Uranium Mill Tailings Pile from the banks of the Colorado River, and that the Town Council urges the Federal Department of Energy to select its remediation option of moving the tailings pile by rail to a safer, more stable location to be selected north of the Colorado River, and to expeditiously implement it's remediation plan for such action.

PASSED, ADOPTED AND APPROVED this 10th day of February, 2005, by the following vote of the Town Council in open session:

Those voting aye: Bob Lippman, Bruce Keeler, Jerry Bidinger, and Robert Ryan;

Those voting nay: Darr Hatch.

TOWN OF CASTLE VALLEY, UTAH

Bruce Keeler, Mayor

ATTEST:

Jennifer Mengel, Town Recorder

Document #213 Landa, Suzanne Individual

From: Suzanne Landa [srlanda@pacbell.net]
Sent: Sunday, February 13, 2005 9:07 PM
To: moabcomments
Subject: Moab DEIS Comment: S.R.Landa 02-13-05
Re: EIS assessment of environmental impacts of actions in remediating tailings, ground water, and contaminated soils at the Moab UMTRA Project Site and vicinity properties.

Moving the Moab Uranium Mill tailings to a location where there is no potential for ground-water contamination is the only acceptable option. Cost should not be a factor when the results protect our ecological environment and assure safe household water for millions of people.

The EIS indicates that as much as 80 percent of the pile could wash into the Colorado River during a severe flood. With the earth's climate changing, a severe flood occurring in the near future is likely. In San Diego, we don't know what affect the continued seepage or sudden release of toxic waste from this pile could have on our southern California lives. However, the adverse impact on plants and animals and on the health of people who live and work along the river is of concern to all of us.

The Colorado River is not only a critical ecological component of the Southwest; it provides the household water supply for 26 million American. In Southern California we have taken the availability of our fresh water far too lightly. The affects of this toxic seepage should be a wakeup call for all. I agree wholeheartedly with Mr. Richardson who said "The range in vision should be to the future and to protect a valuable water supply." The Moab site must be cleaned up in a way that fully protects our water supply with no more delays.

The relocation of the pile is preferable to capping in place in every respect except that it would cost more. The greater indirect costs imposed on other parts of society should be strongly considered when deciding on the remediation plan.

It's time for our government to become accountable for its past and responsible for our future. "The pile" must be moved.

Sincerely,
Suzanne Landa
1068 Oliver Ave.
San Diego, CA 92109

Document #264 Oblak, Denise Utah Guides and Outfitters Association

#264

UTAH
GUIDES &
OUTFITTERS

Post Office Box 1412 Moab, Utah 84532 435-259-2870 www.utah-adventures.com

February 14, 2005

Moab DEIS Comments
U.S. Dept. of Energy Grand Junction
2597 B ¾ Road
Grand Junction, CO 81503

At its annual meeting on February 8, 2005, the Utah Guides & Outfitters (UGO) Association met to discuss the Department of Energy's draft EIS for the remediation of the Moab Tailings pile. The Utah Guides & Outfitters Association comprises over 40 businesses throughout the state that specialize in offering guided tours on the public lands and waterways throughout Utah, including the Colorado River near Moab and Cataract Canyon downstream.

Our members have unanimously agreed to support an alternative that would move the pile from its present location on the banks of the Colorado River. The preferred permanent storage sites would be either Klondike Bluffs or Crescent Junction due to their remote locations and accessibility via rail cars. A slurry line option is opposed by our group due to its unnecessary waste of precious water resources.

UGO members are taking this stand to point out what they see as obvious … hazardous waste stored on the bank of a major river is a very bad idea. Catastrophic flooding on the Colorado River has happened in the past and it will happen again in the future. Many of our member companies and guides remember the huge run-off from the 1983-84 season which threatened to compromise Glen Canyon Dam. And, the peak flows that year were not even at the level that would be expected from a 100-year or 500-year flood. If the river can threaten a concrete dam structure, it is not a huge stretch of the imagination to think it could potentially affect a dirt pile next to its shore.

Another example of the destructive force that a river can wield occurred just a few weeks ago in southwestern Utah. The usually sedate Santa Clara River swelled from a flow of 5 CFS to 6500 CFS in just a matter of days, causing the destruction of nearly 20 homes. If something like this were to happen in the Colorado River drainage, some or perhaps all of the 13 million tons of highly toxic waste could be flushed downstream, which would

contaminate the culinary water that 26 million downstream users depend upon, not to mention that this same water is used for agricultural purposes to grow much of our nation's produce.

To consider capping this pile in place would be highly irresponsible. In today's political climate of soaring deficits, concerns over the solvency of social security, and other weighty issues, it is important to consider the costs of remediation. But putting cost considerations ahead of health and safety concerns for our citizens is unthinkable, perhaps even criminal. In fact, the 1999 Floyd D. Spence Act that transferred responsibility for the Atlas Tailings Pile to the Department of Energy contained a provision requiring the DOE to move the tailings away from the banks of the Colorado River and to clean up the groundwater.

Of 21 similar tailings piles located throughout the nation, Moab's pile is the only one that has not been moved. Nine of these 21 piles were located in flood plains, a risk factor that contributed to their removal. Why should the Moab Tailings Pile be treated differently? It should not.

The Utah Guides and Outfitters Association calls for the DOE for carry out the mandate as set forth in the 1999 legislation, to relocate the tailings to a suitable location that removes the threat to human health and safety from the events caused by a catastrophic flood event.

Thank you for your prompt attention to this important matter.

Sincerely,

Denise Oblak, President
Utah Guides & Outfitters Association

Document #269 David Individual

From: David [uffdada@pacbell.net]
Sent: Monday, February 14, 2005 8:43 PM
To: moabcomments
Subject: question

Reference the toxic waste dump near Moab Utah. Why not allow the toxic pile to filter into the river at a higher rate so then, with luck, we can kill off some more southern Californians and help the traffic problems here in southern california?
All the comments by the local politians seem to indicate that that would be the ideal solution to the problem.

Document #306 McNeely, Jerry Grand County Council

GRAND COUNTY COUNCIL MEMBERS
Jerry McNeely(Chair) · Rex Tanner (Vice Chair)
Audrey Graham · Judy Carmichael · Jim Lewis
Nate Knight · Joette Langianese

February 11, 2005

The Honorable Samuel Bodman
U.S. Secretary of Energy
U.S. Department of Energy
1000 Independence Ave., SW
Washington, DC 20585

Dear Secretary Bodman:

On behalf of the citizens of Grand County, Utah, and the Grand County Council, congratulations on your recent appointment as Secretary of Energy.

As elected officials for the citizens of Grand County, we are writing to ask the Department of Energy to move the contaminated uranium tailings pile from the flood plain of the Colorado River near Moab, Utah, to a safer location within our county boundaries.

We have been working closely with the community, interested stakeholders and scientists to determine the best alternative for remediating this contaminated waste pile. After years of research, discussion and lobbying efforts, the final DEIS has been completed. While we appreciate all the efforts of the DOE Grand Junction in developing the DEIS, we must emphasize that we have serious concerns about *any* alternative that would leave the tailings pile in its present location. There are 26 million people who use water from the Colorado River for drinking and agriculture. In fact, it is this same water that irrigates the crops that feed our entire nation. If the worst should happen and the pile is compromised by a natural catastrophic flood or terrorist act on reservoirs upstream from the site, the damage to the American West and American agriculture could be immeasurable and irreversible. Details of our concerns are outlined in our formal response to the DEIS, which is attached. Based on all the uncertainties identified by the DOE in its document, it is the position of Grand County that *the only acceptable alternative is to move the tailings pile.*

The Moab Site is the only radioactive tailings pile to remain on a waterway. All other similar sites have been relocated because they were deemed too dangerous to remain in place. It is clear that removing the pile to a safer location is the right thing to do. In fact, the Floyd D. Spence Act, passed by Congress in 1999, called for the removal of the site from the floodplain of the Colorado River.

Thank you for your time and consideration on this important issue. We have confidence that you will make the right decision for the people of the American West.

Sincerely,

Jerry McNeely, Chairman
Grand County Council

125 E. Center Street, Moab, UT 84532 · (435) 259-1346 · (435) 259-2574 Fax · council@grand.state.ut.us

RESOLUTION # 06-2005

A RESOLUTION OF THE CITY OF MOAB SUPPORTING THE REMOVAL OF THE ATLAS URANIUM TAILINGS PILE FROM THE BANKS OF THE COLORADO RIVER

WHEREAS, the Atlas Uranium Tailings Pile, consisting of 8.9 million cubic yards of radioactive waste is located on the flood plain of the Colorado River; and

WHEREAS, the south bank of the Colorado River has since 1924 moved north, west and northwest away from Moab and towards the Atlas Tailings Pile; and

WHEREAS, the Utah State Geological Service data shows that the Colorado River is likely to continue to migrate north toward the Atlas Tailings Pile; and

WHEREAS, a Probable Maximum Flood (PMF) of 300,000 cfs could wash 20% to 80% of the Tailings Pile into the Colorado River; and

WHEREAS, the 21,100 sq miles of up-stream Colorado River drainage coupled with the possible failure of upstream dams creates a possible scenario for the Probable Maximum Flood that could contaminate the Colorado River affecting drinking water for 26 million residents as well as the irrigation water for some of America's most valuable lands and crops; and

WHEREAS, the catastrophic opportunity for such a flood can not be dismissed from consideration for the 1000+ years of Department of Energy's legal responsibility for the Atlas Tailings Pile; and

WHEREAS, Federal Code 10 CFR 1002.4 in compliance with the Floodplain Environmental Review Requirements for "the storage of volatile, toxic or reactive materials" in an area that has "even a slight chance of flooding" is *prohibited*; and

WHEREAS, the Floyd Spence Act, 42 USC 7912 (f) (3) requires remediation of the Atlas Tailings Pile pursuant to section 3405 (i) of the Strom Thurmond National Defense Act for the fiscal Year 1999 (10 U.S.C. 7420; Public Law 105-261) to include: (B) "the removal, to a site in the State of Utah, for permanent disposition and necessary stabilization of residual radioactive material and other contaminated material from the Moab site and floodplain of the Colorado River."; and

WHEREAS, tailing piles that were mediated in place at Green River and Monticello after multiple failures caused by a lack of an effective liner and a porous basement structure were eventually moved from Colorado Drainage for reasons of safety; and

WHEREAS, there have been 8 UMTRCA sites located in the Colorado River Drainage and all 8 have been removed to protect people and their environment; and

WHEREAS, a resolution was passed by the 1999 Utah State Legislature and signed by the Governor supporting the transfer of management of the Atlas Tailing Pile from the Nuclear Regulatory Commission who wanted to cap the tailings in place to the DOE in order to facilitate removal of the tailings to an environmentally safe location.

NOW THEREFORE, BE IT RESOLVED THAT THE CITY OF MOAB, strongly supports moving the Atlas Tailing Pile from the unstable banks of the Colorado River to a safer more appropriate location so as to protect Moab City residents and environs, and the 26 million downstream consumers of the Colorado River Water; and,

BE IT FURTHER RESOVED THAT THE CITY OF MOAB is adamantly opposed to the Atlas Tailings Pile being moved south by pipeline or truck. The White Mesa Mill site is the most expensive alternative site to the Moab site; White Mesa has the most problems with potentially polluting ground and surface water; and, there are numerous cultural sites that would be destroyed. Moab strongly objects to the transport of the 11.9 million tons of radioactive waste through the community.

DATED this 8th day of February, 2005.

ATTEST:

By: Rachel Ellison
Rachel Ellison, City Recorder

CITY OF MOAB, UTAH

By: David L. Sakrison
David L. Sakrison, Mayor

Resolution #06-2005 Page 2 of 2

RESOLUTION NO. 2005-2691

A RESOLUTION OF THE GRAND COUNTY COUNCIL SUPPORTING THE REMOVAL OF THE ATLAS TAILINGS PILE FROM THE BANKS OF THE COLORADO RIVER

WHEREAS, The Grand County Council is responsible for the Health, Safety and Welfare of the Citizens of Grand County;

WHEREAS, the Atlas Uranium Tailings, consisting of approximately 11 million tons of radio active waste or approximately 7.5 million cubic yards of contaminated material, has been situated on the Colorado River since 1956;

WHEREAS, Grand County stepped up to the plate and produced uranium for the U.S. during the Cold War in our Nation's effort to maintain its nuclear weapons stockpile;

WHEREAS, Grand County is dedicated to protecting the water users of the West by requesting that the Department of Energy move the tailings to a secured location within Grand County;

WHEREAS, in the 1999 General Session of the Utah State Legislators a Resolution was passed and signed by the Legislatures and Governor in support of transferring management of the Atlas Tailings from the Nuclear Regulation Commission to the Department of Energy in order to facilitate removal of the tailings to an environmentally preferred location;

WHEREAS, the Floyd D. Spence Act of 1999 (B) stated…"the removal, to a site in the State of Utah, for permanent disposition and any necessary stabilization, of residual radioactive material and other contaminated material from the Moab site and the floodplain of the Colorado River;

WHEREAS, the interpretation of Federal Codes (10CFR 1002.4) in compliance with the Flood Plain/Wetlands Environmental Review Requirements stated…"storage of highly volatile, toxic or reactive materials" in an area that has "*even a slight chance of flooding*" *is prohibited*;

WHEREAS, stability of the Colorado River is not a guarantee and thus there is a possible risk of the tailings entering the Colorado River;

WHEREAS, there have been 22 UMTRCA sites identified with the Moab site being the 23rd. Eight of these sites have been located on the Colorado River or its tributaries and have been removed as a protection of the local environment. Clean-up was considered necessary because there are more than 20 million Americans drinking water from the Colorado River;

WHEREAS, nearly all of the Colorado River water is appropriated for some kind of human use whether it be drinking, agriculture or recreation;

NOW, THEREFORE, BE IT RESOLVED THAT THE GRAND COUNTY COUNCIL, STATE OF UTAH, in it's duty to protect the citizens of Grand County will do all that it can to lobby the elected officials of the State of Utah, State of Nevada, State of Arizona and the State of California, as well as their citizens, to write letters or contact their representatives to encourage the Department of Energy to make the right decision and remove the Atlas Uranium tailings from the banks of the Colorado River.

PASSED AND APPROVED THIS 1st DAY OF FEBRUARY, 2005 BY THE FOLLOWING VOTE:

Those Voting Aye: Carmichael, Tanner, Langianese, McNeely, Lewis
Those Voting Nay: None
Those Absent: Knight, Graham

ATTEST

Fran Townsend

Fran Townsend, Clerk/Auditor

GRAND COUNTY COUNCIL

Jerry McNeely

Jerry McNeely, Chairman

Document #307 Darke, John Individual

John Darke
10:40 am
February 9, 2005

I really would like to have a better picture of the process of supplementing the hearing pile the Moab site Moab at the Grand County Highway. A while back some boxes appeared, they were left in the vicinity I was standing by at the time uncertainty. Subsequently a binder, 3-ring binder, appeared. On a spine it was labeled Moab Cooperating Agencies Communication. The index has apparently not been updated. I think it might be helpful. That reading room is receiving a lot of attention from members of the public interest person that there be, and I'm sure you could work it out with the County, the capability at the Reading Room to (a) refile the records that have been utilized, (b) where records have been misfiled, that the [inaudible] be coordinated for some files and (c) that a Contractor person be present such that they can help the patrons who chose to avail themselves of the reading room can be assisted. We had the basic deep waste and we had a reading room with a contractor. I think it would be a good idea to try it again.

This is John Darke.

11:10 am
February 9, 2005

I'm making an on the record comment. 69 Fed Reg 65426 of November 12, 2004, and 67 Fed Reg 70256 December 3, 2004. RE: Pertinent Federal Register Notices.

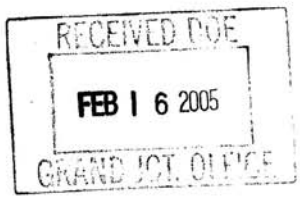
I would like to respectfully draw the attention of the decision-makers where they consider the draft Environmental Impacts Statement regarding radiation Uranium Mill Tailings, Grand and San Juan Counties, Utah, dated November 30, 2004. I would like to comment that specifically, the November 30 DEIS avoids, wherever possible, making quote "explicit reference by footnote to the scientific and other sources relied upon for conclusions" in the Environmental Statement. 40 CFR 1502.24, entitled Methodology and Scientific Accuracy, states "Agencies shall ensure that the professional integrity, including scientific integrity, of the discussions and analysis in Environmental Impact Statements, they shall identify and shall make explicit reference by footnote to scientific and other sources relied upon for conclusions in the statement……

11:10 am

continuation from……, this is John Darke….D..A..R..K..E. I was citing 40 CFR 1502.24 entitled Methodology and Scientific Accuracy. And that criteria states "Agencies shall ensures—error, ensure—that the professional integrity, including scientific integrity, of the discussions and analysis in Environmental Impact Statements. They shall identify and shall make explicit reference by footnote to scientific and other sources relied upon for conclusions in the statement. An agency may place discussion of methodology in an Appendix." I have exercised due diligence in reviewing as many DEIS mentioned official records as possible and

other records. Given the suspense, February 18, 2005, applicable to the present public review process. I have on many occasions found that statements made in the November DEIS were not properly substantiated by explicit reference emphasis at 40 CFR 1502.214 as cited above often the threat of DOE staff or Contractor claimed substantiation has led to dead ends. It is too easy to get lost on the way to determining the veracity or competence of the subject. DEIS transparency is required where credibility is sought. In addition Title I of the Uranium Mill Tailings Radiation Control Act at 42 US 7901 et seq. points out that it is the Secretary's responsibility that records be made publicly available conveniently.

Document #344 Huntsman, Jr. Jon M. Governor, State of Utah



STATE OF UTAH

JON M. HUNTSMAN, JR.
GOVERNOR

OFFICE OF THE GOVERNOR
SALT LAKE CITY, UTAH
84114-2220

GARY R. HERBERT
LIEUTENANT GOVERNOR

#344, pl.

February 15, 2005

Mr. Don Metzler
Moab Federal Project Office
U.S. Department of Energy
2597 B ¾ Road
Grand Junction, Colorado 81503

Dear Mr. Metzler,

RE: Moab Uranium Mill Tailings, Draft Environmental Impact Statement, DOE/EIS-0355D, State of Utah Comments

Thank you for the opportunity to provide comments on a significant project for the State of Utah, remediation of the Moab Uranium Millsite and Tailings Pile. I urge the U.S. Department of Energy (DOE) to remove the Moab Mill Tailings Pile from the banks of the Colorado River, transport the tailings to a repository to be constructed at Klondike Flats, clean up the remainder of the Millsite, and treat groundwater contamination at the site for the period necessary to ensure that contamination does not migrate offsite through groundwater or into the Colorado River in violation of Utah surface and groundwater quality standards. This work should be commenced immediately, and federal funding should be sought to complete the work as promptly as possible. Now is the time to act – to move the Tailings Pile.

The State of Utah appreciates DOE's work in preparation of the Draft Environmental Impact Statement (DEIS), as well as the ongoing work to minimize contamination from moving off the Millsite. However, it is clear that the Tailings Pile cannot be left in the floodplain of the Colorado River. Recent studies by the U.S. Geological Survey and the University of Utah, as well as the reviews by the Utah Department of Environmental Quality, document that the river has migrated historically within the floodplain and over geologic time and that the force of the river at both a maximum flood event and even a 100-year event will generate forces sufficient to erode the adjacent banks of the river and undercut the tailings pile. The National Academy of Sciences Committee also recognized the critical importance of that risk when it reviewed remediation plans for the site. Recent flooding in the St. George and Santa Clara regions

#344, p2

of Utah also demonstrated the swift and immense force of moving water in the desert. We cannot afford to assume the risks associated with having uranium tailings strewn along river banks and bars of the Colorado River below Moab. Good science and good sense tell us the tailings must be moved.

Furthermore, moving the uranium tailings to a constructed repository at Klondike Flats creates the smallest impact and the most reasonable expenditure of funds to solve the problem. The repository site at Klondike Flats has broad support from federal, state, and local agencies, and from local residents. Transportation along the existing rail line reduces transportation impacts. Removing the tailings from the banks of the Colorado River would eliminate the risk of river undercutting, remove the source of groundwater contamination, and reduce the time needed for treatment of contamination at the river's edge.

Additional, detailed comments on the DEIS will be submitted by the Utah Department of Environmental Quality on behalf of the State. We look forward to working with you to initiate the removal of the last of the uranium mill tailings piles on the banks of the Colorado River. Thank you for your consideration of this essential work.

Sincerely,

Jon M. Huntsman, Jr.
Governor

Document #345 Hackley, Pam Individual

#345, p1

To: **Honorable Secretary and Assistant Secretary of Energy, U.S. Depart. of Interior**
Moab DEIS Comments
U.S. Department of Energy Grand Junction
2597 B3/4 Road
Grand Junction, CO 81503

Re: **Remediation of the Moab Uranium Mill Tailings, Grand and San Juan Counties, Utah, Draft Environmental Impact Statement**

From: Pam Hackley
HC 64 Box 3208
Castle Valley, UT 84532
phackley@frontiernet.net

Thank you for the opportunity to comment. These written comments are in addition to those given at the public hearing held in Moab, January 26, 2005.

Move the tailings out of the Colorado River floodplain; move them north to a site within Grand County. Find the best and most stable offsite location for burial and containment. It is time to move forward with resolving the tailings pile issue.

Reasons Not to Cap the Tailings in Place (On site Disposal)
Capping in place is unwise because of the uncertainty of river changes over the short and long-term. The continued location in the floodplain will always be a potential environmental and human health threat. There is no risk assessment that can make capping in place acceptable. In a landscape that is new and as active as the Colorado Plateau, trying to predict long term geomorphic, climatic and other changes is arguably beyond any science or technology that we can bring to bear on this subject. In addition, I have concerns that any study can reliably predict and guarantee that capping in place will be an effective solution for 200-1000 years and beyond. DOE should include a discussion of Dr. John Dohrenwend's paper "Preliminary Review of the DOEs Assessment of Potential Flood Hazards at the Moab Project Site (Atlas Tailings Pile), no date."

If capped in place, there is still potential for a future catastrophic failure of an engineered impoundment. DOE states that more studies would have to be completed to fully engineer capping and containment of the tailings. **DOE states that if capped in place, the tailings may still have to be moved at great cost at some time in the future.** It is arbitrary and capricious to buy a perpetual risk and doubled remediation costs. It is prudent and DOE's mandate to spend this time and money to move the tailings to a more safe place and clean-up the existing site and vicinity areas.

DOE does not carefully and fully address the indirect impacts of potential failures of the capping-in-place alternative. Users include local residents who use the river for summer swimming year in and year out, river guides who make a living from the river, recreation visitors to Moab area, Canyonlands NP, Powell NRA, Page, Grand Canyon NP and all the downstream water users including citizens of Mexico.

Groundwater studies have not conclusively determined that capping in place would prevent future contamination of Moab/Spanish valley groundwater or prevent downstream pollutant migration in the Colorado. Dr. Kip Solomon's study points to the fact that tailings contaminated

#345, p2

waters are already migrating under the river and impacting Matheson Wetlands. This raises the next question of potential to pollute the Spanish Valley aquifer which is not addressed by DOE.

Faced with these studies that do not concur with DOEs analysis, DOE should abandon its evaluation of hydrologic dynamics ~~to further~~ rather than find support for the capping in place alternative.

The extremely adverse health and environmental effects of radiation and radon exposure and effects of other contaminants in the tailings are known. If DOE includes the cap in place alternative in the final EIS, then DOE needs to describe the intensity of impacts more clearly, both at the site as well as downstream in the event of tailings failure into the Colorado. Capping in place would continue to expose residents of Moab and surrounding communities as well as visitors to the area. DOE states that radon would continue to emanate from a capped facility.

The short-term exposure risks to workers and public during tailings removal are acceptable to ensure that off-site stabilization in the long term would essentially remove health risks. DOE must pursue state-of-the-art technology for tailings removal that is as fully protective to workers, residents, and visitors.

DOE does not clearly address the current stability of the pile. DOE admits that full characterization of the pile is incomplete in terms of layers, material sizes, water content, presence/absence of other contaminants/pollutants/hazardous materials.How likely is a failure due to saturation of the pile or river undercutting, or other phenomenon before or during remediation?

DOE's analyses under all resource topics, except possibly worker exposure to radon during remediation, indicates that the on site alternative would result in on-going adverse and significant impacts. Other studies and reports, including those by National Academy of Sciences and those funded through the Citizens Technology Assistance Program substantiate the uncertainties of leaving the pile in place.

"DOE intends to consider the results of the analyses provided in this draft EIS, the relative costs among the alternatives, and **other factors, such as public and agency comments on this draft EIS (including the views of cooperating agencies), in determining its preferred alternative** for the disposal cell location and remediation of vicinity properties... Several cooperating agencies have expressed preferences for off-site disposal. In some instances, the areas of controversy reflect an opinion on which of the alternative actions DOE should select as its preferred alternative. **The State of Utah has stated that the tailings should be moved to an off-site location due to uncertainties in predicting river migration and the ability of on-site disposal to meet protective aquatic standards. The City of Moab and Grand County have stated that the tailings pile should be moved to Klondike Flats** for aesthetic and other reasons. **The Ute community expressed a strong preference that the tailings pile should not be moved to White Mesa Mill due to the high potential for adverse impacts to cultural resources, traditional cultural properties, and other impacts. As downstream users, the Town of Bluff also objects to disposal at White Mesa Mill**." (page S-11)

Further, DOE states "For example, the uncertainties surrounding the speed and direction of river migration are relevant to the on-site or No Action alternatives but are of no consequence to the off-site disposal alternative because the pile would have been removed." (page 2-164)

#345, p3

Further, Grand County Council, Moab City Council and the Town of Castle Valley have all passed Resolutions in February 2005 calling for the removal of the tailings from the Colorado River floodplain to a safe location within Grand County.

Further the Floyd D. Spence National Defense Authorization for Fiscal Year 2001 Act states "Subject to availability of appropriation for this purpose, **the Secretary shall conduct remediation at the Moab Site in a safe and environmentally sound manner** that takes into consideration the remedial action plan prepared pursuant to section 3405(i) of the Strom Thurmond National Defense Authorization Act for Fiscal year 1999 (10 USC 7420 note; Public Law 105-261), **including (A) groundwater restoration; and (B) the removal, to a site in the State of Utah, for permanent disposition and any necessary stabilization, of residual radioactive material and other contaminated materials from the floodplain of the Colorado River."**

Further, the cap-in-place alternative does not meet the meaning or intent of NEPA (40 CFR Parts 1502.1) for "reasonable alternatives which would avoid or minimize adverse impacts or enhance the quality of the human environment."

Finally, DOE makes a strong and overwhelming case for off-site disposal at Klondike Flats or Crescent Junction. DOE states "**Under the on-site disposal alternative, the tailings pile would be a continuing source of contamination** that would maintain contaminant concentrations at levels above background concentrations in the ground water and, therefore, potentially require the application of supplemental standards (institutional controls) in perpetuity to protect human health. Under the off-site disposal alternatives, contaminant concentrations in the ground water under the Moab site would return to background levels after 150 years, by which time active ground water remediation would have been complete and supplemental standards would no longer be needed. **The tailings pile would not be a continuing source of contamination to ground water under the off-site disposal alternative**." (page 2-118)

DOE must follow its own findings, agree with the majority of stakeholders, follow direction in Floyd Spence Act, as quoted above, as well as recommendations from the Executive Office during the NRC period. **The cap in place alternative should be eliminated from consideration as an alternative.**

Tailings Removal Alternatives
DOE must move the tailings to a more safe containment area. Safely transporting materials to protect worker and public health and prevent accidents and environmental degradation becomes paramount.

White Mesa
Relocation to White Mesa site under truck or pipeline modes is not viable, economical, reasonable, or environmentally sound. This alternative does not meet the NEPA test for reasonable alternative (40CFR1502.1). Most of all, it threatens more people's health during the transportation and remediation phases. It is unacceptable to consider moving the tailings so near to the White Mesa Ute reservation, above the Tribe's protestations, and so near to residents of Blanding and Bluff.

DOE states Environmental Justice: "Disproportionately high and adverse impacts to minority and low-income populations would occur under this alternative as a result of unavoidable adverse impacts on potential traditional cultural properties located on and near the White Mesa Mill site, the proposed White Mesa Mill pipeline route, White Mesa Mill." (page 2-162)

This alternative is untenable for other reasons, especially in light of more favorable aspects of moving the tailings north of Moab. These are mentioned in Table 2-132.

3

#345, p4

Slurry option flaws
-building a leak-proof pipeline over incredibly rugged terrain
-potential for new water and wind erosion in a very fragile environment
-visual eyesore during construction and even after reclamation
-water consumption and adverse impacts on Colorado river users and minimum in-stream flows
-contaminated water disposal issues

Truck option flaws
-Traffic impacts through Moab, Monticello Blanding and on Highway 191 – the route can barely handle the mix of truck and tourist traffic as it is. The scenario shown for a nearly continuous stream of tandem trucks is not realistic or feasible.

DOE does not present IUC's business proposal for the White Mesa alternative for public review. Please make this available to the public. Please clarify that this alternative is not a speculative business option and subsidy for IUC. What guarantees, assurities, and bonds would DOE demand of IUC to protect the human and natural environment from operation activities or in the case of abandonment and bankruptcy.

DOE must follow its own findings, agree with the majority of stakeholders, including the Ute Mountain Ute Tribe. **The White Mesa alternative should be eliminated from consideration as an alternative.**

Crescent Junction and Klondike Flats

DOE must move the tailings north to either Klondike Flats or Crescent Junction alternative locations. In my statement at the Moab public hearing Jan 26, I suggested that the Klondike Flats site seems to be preferable. Since that time, I have looked more closely at the options as DOE has presented them and spoken with others more knowledgeable about the locations. It appears that the Crescent Junction site, although further from the pile, may have more advantages than the Klondike Flats site including more suitable burial area (deeper shales) for containment, more favorable quality and quantity of topsoil/cover material for revegetation, the geo-hydrologic structure and pathways would be more "stable and remote" over the very long term, the area is less likely to be used/disturbed and thus people would be less likely to be exposed (because it is not near higher use areas such as the County landfill, the airport, hikers and bikers.) The railline runs closer to the Crescent Junction site. Since it is closer to Green River, that town would likely benefit economically while impacts due to traffic on HWY 191 and into Moab and possibly housing pressures in Moab would be much less.

The biggest and certainly serious drawback is that the Crescent Junction site would obviously be closer to residents of that village and Thompson Springs. The difference in costs between the two sites seems insignificant.

More studies will be needed to assure the stability and containment potential as well as safety of either site.

Unfortunately the tailings are not benign and must be dealt with. DOE will have to accept some level of unacceptable impacts and irretrievable commitment of resources to move the tailings and get the clean-up job done as quickly as possible.

Water Rights

The quantities of water needed to achieve remediation under all the alternatives is staggering. For truck/rail or slurry options, uses will exceed DOE's current right. The upper Colorado River basin is still under adjudication. How will this factor into DOE decisions. The final EIS needs to address this issue more thoroughly, including how DOE will get more water, how up and downstream users will be

#345, p5

affected, how withdrawals will affect groundwater when the River is reduced to minimal flows for extended periods, possibly continuously, for years.

Associated Areas of Contamination
Is DOE confident that the extent of all "off site" contamination has been fully identified. Please clarify why not all of 130 sites would be targeted for remediation. Has the search to find associated contamination included Castle Valley, Castleton, establishments and residents upstream of or around Moab, Cisco, La Sal etc.? How will the agency deal with buildings that may have contaminated tailings incorporated into foundations or slabs?

Adequacy of the Analysis
DOE does not adequately explain or justify the conclusions concerning uncertainties: "With the exception of ground water modeling, **should DOE's characterization, assessment, or assumptions prove incorrect, the resultant changes in impacts would not be of a significance that would affect the principal reclamation decision of whether to relocate the tailings from their current location.**" This statement points out that the level of intensity of impacts under most resource topics has been skimmed over or avoided. The result is that it is hard to weigh the differences among alternatives. Each topic should clearly identify the yardsticks used to measure impacts and at what levels the impact may be minor, moderate, major and significance.

Decisions to be Made and Actions to be Taken
Under the weight of DOE's own analysis and the overwhelming public and local and state governments response in favor of removal of the tailings north of Moab, DOE must select either the Klondike Flats or Crescent Junction alternative for off site disposal. Assuming that DOE does select one of these two off-site alternatives, I would ask that DOE continue or re-establish a broad and inclusive stakeholder group that can be partners with DOE in determining the final remediation plans that will be most protective of the environment and human health. It may even be appropriate to do this now and have a collaborative effort to complete the Final EIS and ROD.

Thank you for accepting these revised and additional comments.

Pam Hackley

Pam Hackley

Feb 12, 2005

Document #346 Fliegel, Myron U.S. Nuclear Regulatory Commission

February 15, 2005

Donald R. Metzler
Moab Federal Project Director
U.S. Department of Energy
2597 B¾ Road
Grand Junction, CO 81503

SUBJECT: NRC's COMMENTS ON THE MOAB URANIUM MILL TAILINGS DRAFT ENVIRONMENTAL IMPACT STATEMENT

Dear Mr. Metzler:

By letter dated November 4, 2004, you transmitted a copy of the U.S. Department of Energy's (DOE's) *Remediation of the Moab Uranium Mill Tailings, Grand and San Juan Counties, Utah, Draft Environmental Impact Statement (DOE/EIS-0355D)* and requested U.S. Nuclear Regulatory Commission's (NRC) comments on the document. The Moab Project is the former Atlas Corporation uranium mill facility that held NRC license SUA-917 before being transferred to DOE in accordance with the Floyd D. Spence National Defense Authorization Act for FY 2001. We have completed our review of the Draft Environmental Impact Statement and our comments are enclosed. If you have any questions concerning the comments please contact me at (301) 415-6629 or by e-mail at mhf1@nrc.gov.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice for Domestic Licensing Proceedings and Issuance of Orders," a copy of this letter will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html.

Sincerely,

/RA/

Myron H. Fliegel, Project Manager
Fuel Cycle Facilities Branch
Division of Fuel Cycle Safety
and Safeguards
Office of Nuclear Material Safety
and Safeguards

Enclosure: NRC's Comments

Donald R. Metzler
Moab Federal Project Director
U.S. Department of Energy
2597 B¾ Road
Grand Junction, CO 81503

February 15, 2005

SUBJECT: NRC COMMENTS ON THE MOAB URANIUM MILL TAILINGS DRAFT ENVIRONMENTAL IMPACT STATEMENT

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Sincerely,
/RA/
Myron H. Fliegel, Project Manager
Fuel Cycle Facilities Branch
Division of Fuel Cycle Safety
and Safeguards
Office of Nuclear Material Safety
and Safeguards

Enclosure: NRC Comments

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U.S. NUCLEAR REGULATORY COMMISSION COMMENTS
U.S. DEPARTMENT OF ENERGY DRAFT ENVIRONMENTAL IMPACT STATEMENT
REMEDIATION OF THE MOAB URANIUM MILL TAILINGS,
GRAND AND SAN JUAN COUNTIES, UTAH

1. Figure 2-1 shows summary schedules of activities for on-site and off-site disposal.

   a. The schedules show "Characterization/Design/Bidding" beginning as soon as the Record of Decision is issued. Does the U.S. Department of Energy (DOE) need an appropriation from Congress before it can begin those activities? If so, the time to obtain the appropriation should be factored into the schedules.

   b. "Characterization/Design/Bidding" is shown on the schedules as requiring 2 years to complete. There is no discussion in the text regarding the details of this phase. Presumably, DOE's preparation of the Remedial Action Plan (RAP) and the U.S. Nuclear Regulatory Commission's (NRC's) review and concurrence with it, are included in the 2 years. How long will it take DOE to prepare the RAP? How long does DOE expect it to take to obtain NRC's concurrence? Note that on many previous Title I projects, because of revisions needed as a result of NRC's initial review, it took longer than 2 years to obtain NRC's concurrence on the RAP.

   c. How long does DOE expect the site characterization portion of "Characterization/Design/Bidding" to take. Shouldn't there be a difference in the time required for characterization of licensed sites (Moab and White Mesa), with much existing data, and new sites (Crescent Junction and Klondike Flats)?

2. On p. 2-7, the Draft Environmental Impact Statement (DEIS) states, "DOE would also perform flood analyses at Courthouse Wash to determine the best alignment and design requirements." Is DOE considering realigning Courthouse Wash? If so, the EIS should provide the justification and discuss the impacts.

3. On p. 2-34, the DEIS discusses drying of tailings prior to truck or rail transport under off-site disposal options. The DEIS does not, however, discuss the potential for additional contamination to seep into the ground water from the drying tailings. Note that a significant fraction of the existing uranium contamination in the ground water at the site resulted from seepage from the ore stored onsite prior to its processing in the mill. Sections 4.2.3, 4.3.3, and 4.4.3 should address this potential impact.

4. On p. 2-114, DOE states that removing tailings to the Envirocare site" would require an amendment to the existing license from NRC..." Note that effective August 16, 2004, NRC transferred its authority with respect to Envirocare (and other 11e.(2) byproduct material facilities) in Utah to the State.

5. On p. 2-132, figure 2-58 shows latent cancer fatalities (LCFs) for workers for the various disposal options. For the on-site option, the figure shows LCFs to be much less than 0.1 for "Moab site workers" but also shows LCFs of almost 0.3 for "disposal site workers." What does that mean for on-site disposal, i.e., how are "disposal site workers" different than "Moab site workers" for the on-site disposal option? Additionally,

Enclosure

the LCFs for "disposal site workers" for off-site disposal options are about 0.4. However, disposal at Moab will involve putting relatively low activity soils in the pile and some moving of the contaminated material on the top of the pile, while disposal for the off-site options will involve handling all of the material including the most radioactive materials. The EIS needs to explain the counter-intuitive conclusion that the latter will result in LCFs that are only 25 percent higher than the former.

6. Tables 2-35 (p. 2-180) and 4-8 (p. 4-40) provide information on the costs of the various options. The costs are, presumably, DOE's best estimates, but there must be significant uncertainty in at least some of the estimates. It would be helpful if the uncertainties for the estimates were also provided. One would expect the uncertainties to vary by the component in Table 2-35 and by the site. For example, site characterization is shown to cost $1.6 million at all sites (the EIS should explain why the costs are estimated to be the same at Moab and White Mesa, where extensive site characterization data already exists, as at Klondike Flats and Crescent Junction, which have not yet been characterized). One would expect the uncertainty in site characterization costs to be greater at the sites that have relatively little site characterization data. As another example, one would expect the uncertainty in tailings handling costs to be greater for the off-site disposal options than for the stabilization in place option, since less is known about the deeply buried tailings that would have to be handled under the off-site disposal options.

7. On p. 4-10, the DEIS presents a discussion of potential impacts, with respect to potential ground water contamination, of a 100-year flood on the Colorado River. The DEIS estimates that as a result of flood water inundating the tailings pile during the flood, over 4 million gallons of contaminated water would drain from the pile at an average rate of 307 gallons per minute (gpm) over 10 days. No details of the analysis are provided.

   The DEIS needs to provide the technical basis for the estimates provided. First, there does not appear to be a mechanism to get that volume of river water into the pile. The side of the pile will be protected by a clay layer with a permeability of 10^{-6} cm/sec and the bottom of the pile, while not as impermeable, also has low permeability. The 1984 Colorado River flood, that is used as the model for the 100 year flood, only rose about 4 feet up the side of the tailings pile, so the head to drive water into the pile is not great. Additionally, estimates of leakage from the bottom of the pile during mill operations were somewhat above 100 gpm. At that time there was a full pool of water on the top of the pile, so the head driving the water seepage was much greater. It therefore seems unlikely that the pile can drain at a rate of 307 gpm.

8. On p. 4-12 the DEIS discusses storm water management. There is a brief statement that floods greater than the 25 year flood could result in tailings being carried into the Colorado River and that alternatives with site drying of tailings could result in more tailings being carried into the River. The same general statement is made for offsite disposal options (p. 4-64). In sharp contrast to the discussion in section 4.17 on disposal cell failure from natural phenomena, no details or analysis of the potential impacts to the River are provided. However, a storm or river flood overwhelming storm management features (which are only designed for a 25 year event) during construction and carrying tailings into the Colorado River is more credible than a catastrophic failure

of the stabilized cell putting 20 to 80 percent of the tailings into the river. Additionally, the consequences of an event beyond the design for storm water management are different for on-site and off-site disposal options. Under the on-site option, only small amounts of primarily the less-contaminated material would be available to be washed into the River, while for the off-site option larger amounts of material, including the most highly contaminated tailings, could be affected. The EIS should provide a detailed analysis of a failure of the storm water management system, including potential consequences and clean up costs.

9. On p. 4-33 the DEIS contains a discussion of the visual impact of the completed cell at the current site. It states that it does not meet BLM Class II objectives. However, on p. 4-25, the DEIS states that Grand County envisions future land use of the site (if tailings were removed) for low-density residences. The EIS discussion of visual impact should clarify that on-site stabilization would have less visual impact at the current site, than off-site disposal followed by residential construction.

10. On p. 4-42 and in table 4-10 the DEIS addresses radiation effects for the on-site disposal option and includes estimates of latent cancer fatality (LCF) risks to workers. The LCFs discussed in the text and shown in the table are the same as those in sections 4.2.15.1, 4.3.15.1, and 4.4.15.1 for workers at the Moab site for the three off-site disposal options. However, off-site disposal options involve significant handling of the most highly radioactive materials, while the on-site disposal option leaves those mostly undisturbed. The EIS needs to explain the apparently incongruous result that the LCF risks to workers handling mildly radioactive materials would be the same as the LCF risks to workers handling more radioactive material.

11. On pp. 4-50 and 4-51 the DEIS discusses a catastrophic release of tailings and identifies several processes, but it does not discuss in detail how the identified processes could actually lead to a catastrophic release. The processes identified are:

Flooding - the DEIS does not acknowledge that large Colorado River floods are not erosive near the pile because the Portal downstream of Moab controls flow for this stretch of the River. In the event of a large flood, the area near the pile would be in backwater. It is difficult to see how this type of event would result in a catastrophic release of tailings.

River Migration - the DEIS correctly points out that this would be a slow process, if indeed it were possible (evidence indicates that migration will take the River away from the pile). The DEIS correctly states that failure of long-term management would also have to occur to have a catastrophic release of tailings. Thus two processes, each very unlikely, would have to both occur to cause a catastrophic release of tailings.

Seismic Activity/Basin Settling - in order for this process to lead to a catastrophic release of tailings, there would also have to be a major flood soon after an unlikely seismic event or there would have to be a failure of long-term management. Thus two processes, each very unlikely, would have to both occur to cause a catastrophic release of tailings.

Cap erosion/failure - this is identified as resulting in slow release of contaminants, rather than a catastrophic release.

The EIS should therefore highlight the conclusion that a catastrophic release of tailings, while theoretically possible, does not seem credible.

12. On p. 4-54, table 4-18 indicates that the concentration of radium-226 in the suspended load in the Colorado River following a catastrophic release of 20 percent of the tailings would be 944 pCi/g and would be 3776 pCi/g following a catastrophic release of 80 percent of the tailings. However, on p.3-10, it is stated that the mean concentration of radium-226 in the tailings solids is 516 pCi/g. The EIS needs to explain this apparent inconsistency.

Document #351 Binyon, Jean Sierra Club, Utah Chapter

SIERRA CLUB
FOUNDED 1892

Utah Chapter
2120 South 1300 East, Suite 204, Salt Lake City, UT 84106-3785
TEL: [801] 467-9297 FAX: [801] 467-9296 www.sierraclub.org

#351, p1

February 15, 2005

Moab DEIS Comments
U.S. Department of Energy Grand Junction
2597 B3/4 Road
Grand Junction, CO 81503

Re: REMEDIATION OF THE MOAB URANIUM MILL TAILINGS,
GRAND AND SAN JUAN COUNTIES, UTAH
Draft Environmental Impact Statement, November 2004 (DOE/EIS-03550)

Enclosed are Comments on the Draft EIS submitted on behalf of the Utah Chapter Sierra Club. These same Comments may be e-mailed before the deadline of February 18, 2005.

The Preferred Alternatives which we advocate are to **Move** the Atlas Tailings pile and other contaminated materials to the **Grand Junction** Site by **Rail**. We further suggest that DOE select only those borrow materials sites which are north of the tailings pile.

Our Comments provide the reasons for selecting these alternatives.

We appreciate the opportunity to submit these comments and look forward to a favorable outcome with your issuance of the Final EIS on the Moab project.

Sincerely yours,

Jean Binyon
3057 East Coyote Court
Moab, UT 84532.

Comments on
REMEDIATION OF THE MOAB URANIUM MILL TAILINGS, GRAND AND SAN JUAN COUNTIES, UTAH
Draft Environmental Impact Statement, November 2004 (DOE/EIS-0355D)

GENERAL INFORMATION

Comments submitted to: moabcomments@gjo.doe.gov

Comments submitted by: Jean Binyon, 3057 East Coyote Ct., Moab, UT 84532.
E-mail address: binyon@binyon.us

Comments submitted on behalf of: Utah Chapter Sierra Club, as authorized by its Executive Committee, January 22, 2005. Address 2120 South 1300 East, Suite 204, Salt Lake City, UT 84106. . E-mail: utah.chapter@sierraclub.org. Website: http://www.utah.sierraclub.org/ Organized 1959. Representing 5,000 Sierra Club members statewide. Statement of Purpose: To explore, enjoy, and protect the wild places of the earth; to practice and promote the responsible use of the earth's ecosystems and resources; to educate and enlist humanity to protect and restore the quality of the natural and human environment and to use all lawful means to carry out these objectives.

PREFERRED ALTERNATIVES

The Draft EIS does not recommend preferred alternatives. The Utah Chapter Sierra Club respectfully recommends that the Atlas tailings pile, other millsite debris and contaminated vicinity property soils be **moved** from the Moab site to the **Crescent Junction disposal site** by **rail**. We further suggest that the best borrow areas would be those six which are located **north** of the Moab site, in order to eliminate unnecessary tandem truck traffic in downtown Moab.

RATIONALE

The Cap-in-Place/On Site Alternative is not safe and/or suitable, for environmental, health, and socioeconomic reasons.

1) The Utah Chapter Sierra Club joins the following in urging that the tailings be moved:

1 Utah former Governor Olene Walker in concert with Governors of California, Nevada, Arizona, and New Mexico
2 Representative Jim Matheson, 2nd Congressional District of Utah
3 Utah State Legislature (2002 General Session SJR 12)
4 Utah Department of Environmental Quality
5 Grand County Council
6 City of Moab
7 Town of Castle Valley
8 The Times-Independent

Grand Canyon Trust
Nature Conservancy
Living Rivers
Southern Utah Wilderness Alliance
Colorado Plateau River Guides
Colorado Riverkeeper, an Affiliate of Waterkeepers Alliance
Utah Guides and Outfitters
Glen Canyon Group Sierra Club, and
The majority of residents giving oral comments at the DOE Public Hearing January 26, 2005.

2) Evidence offered by Dr. John Dohrenwend of the University of Arizona, questions the DOE's contention that the Colorado River is within a stable channel, and slowly migrating, if at all, southward and eastward, away from the tailings pile. Dr. Dohrenwend's studies show that the river's inner channel has, over the past 80 years, shifted closer to the pile and has become narrower and deeper. Indeed, according to recent letters to *The Times-Independent*, a dike or levee built by Atlas Minerals in the early '60's aided in the River's northward migration. From his extensive historical and current hydrologic and geologic studies, Dr. Dohrenwend concluded that the Moab site is not suitable for the long-term storage of the more than 11 million tons of hazardous waste.

3) Evidence offered by Dr. Kip Solomon of the University of Utah, questions the DOE's contention that ammonia and uranium could not travel underneath the riverbed into the Scott Matheson Wetlands Preserve. To the contrary, he found that contaminated water *is* moving under the river to the south bank. Dr. Solomon is quoted as saying, "The tailings pile is literally a house built on sand. . . . If you leave those tailings in place they will end up in the Colorado." (*The Times-Independent,* Thursday, May 27, 2004)

4) The Multi-Dimensional Streamflow Simulation model being developed by the U.S. Geological Survey raises questions about DOE's assumptions regarding the extent of the floodplains and the likelihood that above-bank flows would be "dissipated in the Matheson Wetlands Preserve." As presented to the Moab Tailings Stakeholders Group Meeting January 14, 2005, the model illustrates the great complexity of stream flow as it is affected by both natural and man-made variables. The risks associated with the unpredictability of flooding makes it imperative that the tailings be moved.

5) Point #10 of Table S-1--Catastrophic Floods focuses on the consequences of flooding for the Moab section of the river, probably understating the consequences for the 25-millions people and valuable agricultural production downstream. The Colorado River serves the entire southwestern United States and is of regional and international concern. A more adequate analysis of risks would look at the entire river system, from upstream reservoirs through Lakes Powell and Mead to the Gulf of Mexico. The value of a regional approach is obvious, as neither rivers nor groundwater respect state boundaries, and water is the limiting factor in the sustainability and even the survivability of most of the interstate region.

6) Since the collapse of the uranium mining and milling industry, the basis of Moab and Grand County's economy has been tourism. The Atlas tailings are located at the "doorway" to Moab. A comparison of two simulated views in Volume I of the Draft EIS can serve to illustrate the very positive result, visually, of moving the tailings. These views are found in *Figure 4-5* on page 4-33, and *Figure 4-9* on page 4-77. Although it will take many years and a great deal of temporary disruptions to move the tailings, their removal to higher and safer ground will clearly be of benefit to the County's socioeconomic wellbeing.

Costs

Most reviewers of the Draft EIS quote the costs figures given on page S-6 of the Summary document as conclusive, failing to recognize that these Surface Remediation Alternatives projections are only a part of the picture. The Ground Water Remediation costs (page S-9) will require appropriations regardless of the disposal and transportation alternatives chosen in the Final EIS. Vicinity property cleanup costs also enter the budget estimates.

Volume I provides details in 2003 dollars within a range of –15% to +30% beginning after the Record of Decision is issued. The Estimated Lifetime Cost of Analyzed Disposal Alternatives (Table 2-35 on page 2-180) shows a total cost of $248.8 million for the on-site alternative, not the $166 million often quoted in the Summary document. Included are costs beginning with site characterization through surveillance & maintenance, plus vicinity property cleanup and a contingency of 10%. The total cost of the alternative we have recommended—rail transportation to Crescent Junction, is estimated at $472.3 million, admittedly much greater.

We question the assumption that the timeframe for ground water remediation should be the same, namely 75-80 years, for all disposal alternatives. Given the continuing source of contamination which would conceivably exist with the Cap-in-Place alternative, it is likely that such remediation would require more than 80 years. Since no precedent exists for remediating a uranium mill tailings pile in a floodplain, both longterm risks and costs are more speculative than for remediation off-site. It should be noted that Table 4-8 Remediation Costs on page 4-40 does include greater annual costs for ground water and post-remediation costs for on-site versus off-site disposal--$942,000 versus $933,000.

Regarding timeframe, compared to DOE's responsibility for 200 to1000 years, the 7 to 10 years for surface remediation and 75 to 80 years for ground water remediation represent a sound investment in time. We would argue that the greater cost for the much safer alternative of relocating the tailings from the Moab site to either site north of their current site is just such a sound investment.

White Mesa IUC Mill Site is unsuitable

Of the three off-site locations considered, the White Mesa site is the greatest distance from the Moab site and would require moving the tailings out of Grand County, either by truck via the already congested main street of Moab, or by slurry pipeline. Construction of the two buried pipelines, 89 miles long, under the Colorado River and across varied and undulating ground, and of pump stations and other necessary infrastructure, would cause both unacceptable environmental impacts and a long delay

in actually moving the tailings. The following paragraph displays additional disadvantages of the slurry transportation mode.

The presence of archeological and other cultural sites at White Mesa as well as proximity of minority and low-income populations—an environmental justice concern, also make the site a poor choice. According to Sarah M. Fields in a June 2004 report on White Mesa, the IUC plant is located on the White Mesa Archeological District, which was found eligible for--tho' not officially listed on, the National Register of Historic Places. The Ute Mountain Ute, Southern Ute, and Northern Ute Tribes all oppose moving the tailings to White Mesa.

Slurry Pipeline and Truck transportation modes are unacceptable

As noted in most of the *figures* in the Summary Draft EIS, both slurry and truck are worse alternatives than rail.

Slurry exceeds truck and rail in Annual Withdrawals of Colorado River Water (*Fig. S-4*); Maximum Land Disturbance (*Fig. S-5*); Maximum Number of Potentially Affected Cultural Resources (*Fig. S-6*); Minimum Number of Potentially Affected Traditional Cultural Properties (*Fig. S-7*); Power Requirements (*Fig. S-8*); and Total Nonpotable Water Consumption (*Fig. S-11*);

Truck exceeds rail in Total Fuel Consumption (*Fig. S-9*); Daily Potable Water Consumption (*Fig. S-10*); Total Nonpotable Water Consumption (*Fig. S-11*); Sanitary Waste Generation (*Fig. S-12*); Generation of New Direct and Indirect Jobs (*I.e.,* would require more labor) (*Fig. S-15*); Latent Cancer Fatalities Among Workers (*Fig. S-16*); Nonradiological Transportation Fatalities (*Fig. S-19*); Increase in Truck Traffic on US-191 (*Fig. S-21*); and Increase in Moab Traffic from Commuters (*Fig. S-22*). While both truck and rail would generate more dust than slurry, it is clear that DOE has developed a great deal of experience in its reclamation of 22 UMTRCA sites, and is capable of dealing with all construction and operational phases with a minimum of exposure by workers and the public in general.

It is recognized that trucking will be necessary as an adjunct to rail, to move all of the material in the vicinity properties to the Moab site, for example, as well as to move mill parts and other debris which cannot be loaded into railcars. Trucks will also to used between rail sidings and disposal cells. One further point--since some borrow materials may be moved by truck, it is best to use borrow areas which minimize the need for use of US-191.

Klondike Flats site has drawbacks

1) Interference with Recreation, especially during construction and operation of the disposal cell:

Klondike Flats is just north of the Canyonlands Field Airport and north of the Blue Hills Road, which has heavy recreational use. Hikers, campers, mountain bikers and off-highway vehicles use the area during most of the year. It is estimated that 53,000 recreational use visits occurred in 2002. The Blue Hills Road is also used to access a track used by motorcycles and ATVs, especially in the spring and fall, an estimated 1,000 user days per year. Construction of a new public access road and overpass and movement of the tailings and other materials would create dust, noise and vibration

which would severely affect recreation and airport employees and users.

By contrast, the Crescent Flats site at Crescent Junction has little if any recreational use.

2) Restricts room for growth, for airport expansion, and other future needs:

Klondike Flats is only 18 miles from the fast-growing Moab and Spanish Valley areas. While the site itself is on BLM administered lands, there are properties within the northern corridor which are privately owned or are administered by the State of Utah School & Institutional Trust Lands Administration (SITLA). SITLA is mandated to maximize the value of its holdings to enhance revenues for public education. The corridor could provide for economic assets such as gas stations, motels and campgrounds which serve visitors.

The Crescent Flats site is near only to Crescent Junction, whose only industry--a gas station, appears to be closed. Neither Crescent Junction nor the small settlement of Thompson Springs, 6 miles away, contain significant population centers; neither is expected to grow in the future.

3) Proximity to National Parks

Klondike Flats is close to Arches National Park. As shown in *figures 4-10* and *4-11*, on pages 4-79 and 4-80 of Volume I, the disposal cell would be potentially visible from this much visited park. The increased truck traffic and impacts of construction of overpasses and access roads could decrease visitors' appreciation of the area over the many years required for this project.

While the Crescent Junction disposal cell site would be somewhat more visible, it would be most apparent from the I-70 scenic overlook.

Other comparisons of Klondike Flats and Crescent Junction

In many regards, Table 2-32 Summary and Comparison of Impacts shows few if any differences in impacts between the two sites including: Geology and Soils, Air Quality, Surface Water, Floodplains and Wetlands, Aquatic Ecology, Noise and Vibration, Traffic, and Environmental Justice.

In terms of Ground Water, the table shows that "Additional contamination from the ammonia salt layer could reach ground water within 1,100 years and could continue until 1,540 years from the present, even after completion of ground water remediation" if materials are stored on-site. Travel time at Klondike Flats to underlying ground water would be 25,000 years, and at Crescent Junction 170,000 years.

In terms of Terrestrial Ecology and Land Use, differences were projected in the number of acres disturbed for transportation infrastructure and total acres of short-term land disturbance. Whether moved by truck or rail, there would be more such disturbance at Klondike Flats than at Crescent Junction.

More Cultural Sites would be adversely affected at Klondike Flats—15 to 32, versus estimates at Crescent Junction where 4 to 11 would be affected.

Costs at Crescent Junction would be somewhat higher than at Klondike Flats. On the other hand, benefits in terms of Annual Output of Goods and Services and Annual Labor Earnings would also be higher at Crescent Junction.

A further advantage of Crescent Junction is that the site contains more of the borrow materials which would be needed. Thus, the maximum *increase* in average annual daily truck traffic on US-191 from shipping borrow materials would be 16% for Klondike Flats compared to only 6% for Crescent Junction. The 6% at Crescent Junction is even lower than the 10% which would be incurred with on-site disposal.

The Summary Tables show no discernable differences between the two sites, if materials are moved by rail, in Annual Withdrawals of Colorado River Water (*Fig. S-4*); Maximum Land Disturbance (*Fig. S-5*); Power Requirements (*Fog. S-8*); Daily Potable Water Consumption (*Fig. S-10*); Total Nonpotable Water Consumption (*Fig. S-11*); Sanitary Water Generation (*Fig. S-12*); Annual Generation of Residual Radioactive Material and Solid Waste (*Fig. S-13*); Annual Costs and Benefits (*Fig. S-14*); Latent Cancer Fatalities Among Workers (*Fig. S-16*); Public Latent Cancer Fatalities (at the Moab Site)(*Fig. S-17*); Public Latent Cancer Fatalities from Vicinity Property Exposure (*Fig. S-18*); Increase in Truck Traffic in Downtown Moab (*Fig. S-20*); and in Borrow Material Requirements (*Fig. S-24*).

The Klondike Flats site has more adverse impacts in the following: Maximum Number of Potentially Affected Cultural Resources (*Fig. S-6*); Generation of New Direct and Indirect Jobs (*Fig. S-15*); and Increase in Truck Traffic on US-191 (*Fig. S-21*).

The Crescent Junction site has more adverse impacts in: Total Fuel Consumption (*Fig. S-9*); Nonradiological Transportation Fatalities (*Fig. S-19*); and Increase in Moab Traffic from Commuters (if materials are moved by truck) (*Fig. S-21*). It should be noted that all of these impacts are due to the fact that it is further than Klondike Flats from the Moab site. Indeed, this very isolation of the Crescent Junction site is a major advantage.

There is one factor that affects Crescent Junction but not the Klondike Flats site, and that is the possible construction and operation of the Williams Petroleum Pipeline Terminal on fenced 50-acres within a 65-acre site adjacent to the Crescent Flats acreage. (See *Fig. 2-24*, page 2-55 of Volume I.) This aboveground and underground facility would include storage tanks, a truck-loading rack, vapor combustion system, electrical substation, offices and warehouse buildings. It would be served largely by truck traffic. Approved by BLM in 2001, the project has been delayed by litigation. If the Williams timeframe coincides with that of DOE's Remediation of the Moab Uranium Mill Tailings, cumulative impacts will have to be taken into account in developing the remedial action plan. The Williams project would not disqualify the Crescent Junction site.

If the Williams facility is actually built, it will be much more prominent and visible from both I-70 and US-191 than will the finished disposal cell and site.

CONCLUSIONS

On page S-11 of the Draft EIS, it states: "DOE intends to consider the results of the analysis provided in this draft EIS, the relative costs among the alternatives, and other factors, such as public and agency comments on this draft EIS (including the views of cooperating agencies), in determining its preferred alternative for the disposal cell location and remediation of vicinity properties." (Emphasis mine) In addition, the National Academy of Sciences made it clear that consideration of long-term impacts should help guide the eventual remediation decision.

We have looked at the same three considerations. While we are unable to

gauge the validity of technical requirements and of conceptual and analytical models--such as cost modeling, we applaud the DOE for its widespread release of the Draft EIS and sufficient comment period, for recognizing differences in interpretation by reviewers, and for its efforts to include the public in scoping and informational meetings. However, we find the analysis of costs presented in the Summary document to be incomplete and misleading. Indeed, the consequences of uncertainties/assumptions imply that the risks of on-site disposal of the tailings could result in extremely high costs--in more than federal dollars. In terms of "other factors," we implore you to give priority consideration to the many members of the public and the many agencies and organizations which urge you to MOVE THE TAILINGS.

Thank you for your attention. I would like to receive a copy of the Final Environmental Impact Statement on the Remediation of the Moab Uranium Mill Tailings in the mail.

Jean Binyon (for the Utah Chapter Sierra Club)
3057 East Coyote Court
Moab, UT 84532

E-mail: binyon@binyon.us

Document #378 lhart Individual

From: lhart578@aol.com
Sent: Sunday, February 13, 2005 12:15 PM
To: moabcomments
Subject: Colorado Water Ways
Deptment of Energy:
Comments on Proposed Clean up:

As the representative for the Women's Chamber of Commerce Community Safety Committee I am writing this note to see what we can do to support your efforts

Water has been concern that has been put on the shelf far too long.

I **have a few questions, and based on those anwers the "Women's Chamber of Commerce" would like to provide a serioes of Community Forums and informational workshops.**

1. Will moving the uranium tailings pile secure safe drinking water?

2. What is the preferred site to move this waste?

3. Can this waste be used for other sources if recycled?

4. What is the cost of this move if Las Vegas is selected as the location for pilings?

5. Are other waterways endangered by similar situations?

6. What has been done to prohibit coal waste dumping in American water ways?

7. How does a family protect themselves from cancerous waters?

8. Does boiling rid the water of all dangerous agents in water?

9. Is there a way to disolve this waste without endangering the air quality?

10. Will the costs of this relocation be paid by the EPA?

TEMPORARY SOLUTION

- **Motivate community of safe water practices**
- **Band Coal waste dumping in ALL water ways**
- **Develop alternative source of water development**
- **Develop a community based action committee, members made up of:**

Community organizations
Water Autorities
Chemical Specialists/Scientists
Engineers
Energy Specialists
Local Counties endangered

Document #427 Stafford, Richard A. Individual

Feb 17 05 08:53a Richard Stafford 970-565-4776 p.2

#427, p1

P.O. Box 1389
Cortez, Colorado 81321
February 16, 2005

Mr. Don Metzler
Moab Federal Project Director
U.S. Department of Energy
2597 B ¾ Road
Grand Junction, Colorado 81503

Subject: Remediation of the Moab Uranium Mill Tailings
DOE/EIS-0355D

Dear Mr. Metzler:

The purpose of this letter is to present my reasons for opposition against three of the proposed alternatives and my reasons in favor of either of two alternatives.

I am opposed to On-Site Disposal, utilization of the White Mesa Mill Site and a No-Action alternative. The tailings pile must be moved. Everyone aware of the pile's existence has known this for many years as evidenced by the DOE's thorough analysis and documentation as presented in your Draft EIS. The tailings are much, much too close to the Colorado River. Consequently, they pose an unacceptable long term risk to the downstream environment and users of the river's resources in terms of on-going leaking and leaching of contaminants and in terms of the chances for a shift in the river channel, either slowly over time or suddenly, with catastrophic consequences. Finally, and not an insignificant consideration, is the long-term health effects on the residents of Moab and the Grand Valley from wind-blown dust and particles from the pile, despite the best efforts to prevent this with proper cap maintenance.

I am opposed to the White Mesa Mill Site Alternative primarily because of the long distance transport of tailings this requires. First the considerable distance involved as compared to the two other off-site disposal alternatives immediately makes White Mesa relatively less favorable. Secondly, the terrain between the pile's present location and White Mesa is not conducive to transport of such a hazardous material. Whether by highway or slurry pipeline, this rugged country of sharp hills, canyons, and rock monoliths makes this alternative a choice of "last resort" from a transport consideration. As a civil engineer, I can envision the detailed engineering required to construct and safely operate a slurry pipeline through this area. It can be done but at a great cost in route surveying, engineering design,

Feb 17 05 08:54a Richard Stafford 970-565-4776 p.3

#427, p2

right of way acquisition and construction and maintenance. Operational costs of transport and the costs associated with recycling the water and returning it to Grand County are further factors against this alternative. There are a number of points to consider with regards to use of the existing highway for truck transport, all reasons for not choosing this alternative. The present highway is well designed and accommodating of the topographic hurdles it must overcome. Nonetheless, the chances of an accident and spillage or loss of tailings material is greater on this highway than it would be on a highway having a more uniform grade and a more linear alignment.

I am a frequent user of this highway both on business and for access to recreation areas. I have an engineering office in Cortez, Colorado, a branch office in Monticello, Utah and business dealings in Moab and Blanding. I have traveled this highway between Blanding and Moab in all weather and all times of the day. The highway is heavily used by trucks, recreation vehicles and passenger cars. It would not be wise to increase this traffic loading with the transport of the mill tailings to White Mesa. I am sure you are well aware of the traffic through the city of Moab with predictions approaching 1000 trucks per day without the addition of tailings transport. There is no reasonable bypass route around downtown Moab. Likewise, for Monticello and Blanding, these two cities should not suffer the consequences of tailing truck traffic. And although it is conceivable that bypasses could be built around each city, the associated costs, both in construction and in lost revenue for city businesses from tourists and others not going through the downtown commercial area eliminates this from consideration. In summary, given that there are other, more viable alternatives, there is no justification for hauling the tailings by truck to White Mesa.

Finally, with regards to the While Mesa alternate, it is not proper to burden the residents of this area with the potential hazards associated with relocating the tailings pile there.

I am I favor of either of the two Grand County alternatives, either disposal at Klondike Flats or at Crescent Junction. The big advantage of both of these two alternatives is their close proximity and relative ease of access by-means-of rail transport. I understand one of the objections to the Klondike Flats Alternate is its heavy use by bikers. Loss of a recreational feature that can be replicated elsewhere in Utah is an invalid reason for not considering this site when other factors such as geology, topography and hydrology are of much more importance.

I also encourage you to institute an active and comprehensive groundwater remediation system at the site of the tailings pile employing the latest "pump and treat" technology.

Feb 17 05 08:54a Richard Stafford 970-565-4776 p.4

#427, p3

In summary, Klondike Flats Alternate and Crescent Junction are the two most favorable alternatives. The White Mesa Mill Site is the least favorable due to all the transportation factors associated with it.

Thank you and your staff for all of your efforts and for this opportunity to comment on the draft EIS.

Yours truly,

Richard A. Stafford

Richard A. Stafford, P.E.

Document #429 Dohrenwend, John C. University of Arizona

Cathy Thomas

#429, p1

From: dohrenwend@scinternet.net
Sent: Thursday, February 17, 2005 1:08 PM
To: moabcomments
Subject: Technical comments re: river migration potential

MoabMillComment.doc

Attached are my comments regarding the potential for river migration in the vicinity of the Moab Mill site. Comments are in MS word format.

John C Dohrenwend, Ph.D.
PO Box 141
Teasdale, UT 84773-0141

866-230-8941
dohrenwend@scinternet.net

SCI WebMail http://webmail.scinternet.net/

1

#429, p2

Review of the Department of Energy's Assessment of Potential Flood Hazards at the Moab Project Site (Atlas Tailings Pile)

John C. Dohrenwend, Ph.D.

Adjunct Professor of Geosciences
The University of Arizona

Southwest Satellite Imaging
PO Box 141
Teasdale, Utah 84773

dohrenwend@rkymtnhi.com

#429, p3

Introduction

For almost 25 years, the city of Moab, Grand County and the state of Utah have all been faced with a difficult and contentious problem: what to do with the uranium mill tailings pile located on the Colorado River floodplain just north of town? This problem is complex and contentious. On the one hand, an impressive number of scientists and engineers working for Atlas Minerals Corporation, the Nuclear Regulatory Commission, and the Department of Energy have written reports suggesting that the pile is safe and will not be compromised by even the largest of floods that could possibly occur in the area. But common sense suggests that the location of the pile just isn't safe. After all, the Colorado River is notorious for the extreme variability of its flows. Flows in historic times have ranged from base flows of 2500 to 4000 cfs during the dry months of late summer, fall and winter to as much as 125,000 cfs during the snowmelt floods of late spring and early summer. Moreover, the site of the mill and tailings pile is located on the Colorado River floodplain on the outside of a large bend in the river channel.

The potential impact of an extreme flood is considered by many people to be one of the key issues relating to the safety of the mill site. However this possibility is not adequately considered in the draft EIS on 'Remediation of the Moab Uranium Mill Tailings' released by the Department of Energy on November 3, 2004. Instead, limited references are made to four previous reports that discount flooding as a serious problem. These reports are:

Harvey, M. D. and Schumm, S. A., 1982, Geomorphic Evaluation of the Long Term Stability of the Below-Grade Disposal System Site, Atlas Minerals Uranium Extraction Facilities, Moab, Utah: Water Engineering and Technology, Inc., Shreveport, Louisiana, unpublished report, 30 p.

Mussetter, R. A., and Harvey, M.D., 1994, Geomorphic, hydraulic and lateral migration characteristics of the Colorado River, Moab, Utah - Final Report: Mussetter Engineering, Inc., Ft. Collins, Colorado, unpublished report to Canonie Environmental and Atlas Corporation (MEI Ref. No, 94-02), 102 p.

U. S. Department of Energy (Grand Junction Office), 2002, Lithologic, Well Construction and Field Sampling Results from the 2002 Field Investigation: Report October 2002,, 60 p.

U. S. Department of Energy (Grand Junction Office), 2003, Migration potential of the Colorado River channel adjacent to the Moab Project site: Letter Report November 2003, Revision 2, 11 p. + Figures

The last of these reports draws heavily from the data and interpretations presented in the previous reports and summarizes the position of the DOE regarding the flood hazard potential at the Moab Mill site, This 19 page document claims that, "Although a conclusive prediction of future river movement is not possible, evidence suggests that the river is and will continue migrating to the south and east away from the existing tailings pile." The report presents several technical arguments in support of this claim.

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These arguments include consideration of:
(1) Historical evidence of river migration,
(2) Sediment input from Courthouse Wash and Moab Wash,
(3) Location and age of river terrace gravels at the north end of Moab Valley
(4) Thickness and distribution of basin-fill sediments in the Moab Valley,
(5) Rate and character of salt dissolution in the Moab Valley area, and
(6) Absence of a cobble-gravel bedload downstream of the Portal.

Historical evidence of river migration

Because of the potential impact of an extreme flood on the stability of the Atlas tailings pile, the Colorado River and its floodplain between the US 191 bridge and the Portal has become one of the most intensively studied areas in the upper Colorado river basin. This area has been measured, modeled, drilled and sampled throughout the past two decades in an effort to predict future changes in the river's channel. Historic maps, aerial photos and satellite images have been examined to document changes in channel form and position over the past 80 years.

According to the analysis included in the November 2003 letter report, the Colorado River is moving south and east towards Moab. However, this is highly unlikely because Moab is on the inside of a river bend aimed away from town. In fact the historical analysis presented in this DOE report is seriously flawed. Several of the maps and aerial photographs used in this analysis were not accurately registered to each other. These inaccuracies are most conspicuous for the DOE interpreted positions of the channel in 1944 and 1953. Downriver from the pile, the southwest bank of the river is shown in the DOE analysis to be located in 1944 and in 1953 near the present position of the river's northeast bank. Also conspicuously inconsistent are the different channel positions attributed to 1953 (based on aerial photos) and 1959 (based on the 1959 USGS topographic map). This is particularly revealing because the 1959 topographic map was produced from analysis of the 1953 photos.

By accurately registering all the historic maps and photographs, reliable comparisons between one time and another can be made, and the picture summarized in Figure 1 emerges clearly. Since 1924, the south and east bank (river left) has moved progressively north, west and southwest away from Moab. From the bridge to the pile, the south bank has moved north and northwest an average of 320 feet since 1944. Downstream from the pile, this bank has moved west and southwest an average of 175 feet during this same period. In contrast, most of the north and west bank (river right) has remained in essentially the same position since 1924. The only significant exception is the area immediately adjacent to the pile where the channel appears relatively unstable. In this area, the west bank shifted rapidly eastward between 1962 and 1983, only to shift westward again sometime before 2001. The net result of all of these changes has been a conspicuous 37% narrowing of the channel that occurred mostly between 1962 and 1983.

These findings are directly contrary to the statement in the November 2003 letter report that " the river is and will continue migrating to the south and east away from the existing tailings pile" and they cast considerable doubt on the overall integrity of this report. Moreover, the progressive narrowing of the channel between 1944 and the

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present implies that the river's past behavior may not be a reliable predictor of future channel changes.

Sediment input from Courthouse Wash and Moab Wash

According to the November 2003 letter report "The tailings pile and former mill site are sited on an alluvial fan developed from Moab Wash and Courthouse Wash. Both washes have delivered significant quantities of sediment to the area in the past, and deposition will continue unless significant changes occur in the upstream watersheds. Sediment input from Courthouse Wash and Moab Wash tends to push the river south and prevents lateral migration to the north".

However, as inspection of historical aerial photographs clearly shows, the Colorado River channel has, in fact, moved more than 300 feet north and northwestward between 1944 and the present time (Figure 1). In direct contradiction to DOE's argument, most of this movement occurred directly opposite and immediately downstream from the mouth of Courthouse Wash.

It has long been recognized that the alluvial fans of desert streams typically build outwards from their valley (or canyon) mouths. However in some important ways, Courthouse Wash is not a typical desert stream. It joins the Colorado River less than a quarter mile after leaving the mouth of its narrow, steep-walled canyon. During low flows, the much larger flow of the Colorado quickly carries away most of the sediment that might otherwise be deposited at the mouth of the wash. During high flows a very different situation may occur.

Like many of the washes that drain the slickrock country in the Moab area, Courthouse Wash is ephemeral and its flow is highly variable. The wash seldom flows with any volume for more than a few days, even after a heavy rain. Flash flooding is common and typically occurs during the southwest monsoon in mid to late summer. During flash floods, flows down the wash may exceed several thousand cubic feet per second (cfs), and in extreme cases, may peak at flows greater than 10,000 cfs.

Most of the water flowing down the Colorado River comes from the snowfields of the southern Rocky Mountains. Consequently, the highest flows on the river almost always occur during the snowmelt floods of late spring. By mid summer, flow in the river typically drops to somewhere between 2500 and 4000 cfs. Therefore, whenever a large flash flood occurs on a tributary wash, the result is that for a short time the flow of the tributary exceeds the flow of the main stream. When this happens, the tributary flow may jet all the way across the main stream channel to the opposite bank.

This unusual role reversal between tributary and main stream can be truly spectacular. For example, consider this eye witness account of an event which occurred near the downstream end of Westwater Canyon in the late summer of 2002 when washes started running red over the black rocks of the canyon's walls. "At the end of the rapids and around the corner, a side canyon at Big Hole was spewing water, rocks and debris across the river and effectively preventing the rafts from passing the side canyon. The flow from the side canyon had enough force to shower the rafters upstream with a rain of mud."

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Courthouse Wash has been witnessed to behave in a similar fashion during late summer floods, shooting water and debris across the Colorado and sometimes into the sloughs. First-hand observations of the effects of a powerful flash flood on Courthouse Wash in the mid 60's provide insight into the effect of such floods The alluvial fan deposited by this flood was large enough to temporarily block and divert the flow of the Colorado River. This incident is a compelling demonstration of the possible short-term dominance of the wash during the summer monsoon season, when the river is low.

This role reversal has contributed to the accumulation of large quantities of sediment along the south bank of the Colorado River directly opposite and immediately downstream from the mouth of the wash. This, in turn, has contributed to the northward migration of the south bank and a significant narrowing of the river channel.

Location and age of river terrace gravels at the north end of Moab Valley

River gravels are exposed on a strath terrace surface at the mouth of Courtwash Wash. This terrace surface is an erosional feature cut in bedrock. The elevation of this terrace is about 4012 feet, approximately 54 feet above the present level of the Colorado River channel (Figure 2). The age of this terrace has been estimated to be about 12,000 to 30,000 years old. This age estimate is based on a comparative analysis of soil development. However, the terrace surface is significantly degraded. Therefore, this age estimate should be considered as very imprecise and is probably much too young.

The November 2003 letter report argues that the location and estimated age of this terrace suggests that the river has migrated southward over the last 12,000 to 30,000 years. However, there are two significant problems with this suggestion:

(1) This terrace is located within the mouth of Courthouse Wash and, therefore, is more a product of Courthouse Wash than the Colorado River. Colorado river gravels are preserved on the terrace surface. However, these gravels could have been deposited during a large flood on the Colorado River, and therefore, they do not necessarily indicate the exact position of the Colorado River channel at the time of deposition.

(2) Assuming the age estimate based on relative soil development is correct, the height of this terrace would suggest that the Colorado River has been downcutting at a rate somewhere between 4.5 and 1.8 feet per thousand years during the past 12,000 to 30,000 years. This is the only terrace on the Colorado River that is preserved in Moab Valley. However, preliminary age estimates based on exposure age dating techniques upstream from Moab Valley indicate downcutting rates more on the order of 0.7 feet per thousand years. If this estimate is correct, then the age of the Courthouse Wash terrace would be closer to 75 thousand years

A wood sample was recovered from DOE borehole 435 at an elevation of about 3853 feet, approximately 105 feet below the level of the present river channel. Bore hole 435 is located about 600 feet from bedrock outcrop at the north end of Moab Valley and about 1200 feet from the terrace at the mouth of Courthouse Wash (Figure 2). The age of the wood sample has been estimated by radiocarbon analysis to be about 45,000 years old. Unfortunately, reliable radiocarbon age dating is limited to the last 45,000 years.

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Therefore, this age estimate must also be considered to be very imprecise. That is, the age of this sample must be considered to be 45,000 years or older, and exactly how much older cannot be determined by radiocarbon analysis.

If one assumes that these two age estimates are both precise and correct, then these two occurrences suggest either: (1) a minimum of 159 feet of displacement between the mouth of Courthouse Wash and the site of bore hole 435 within the past 45,000 years; or (2) extremely deep scour by the Colorado River sometime during the past 45,000 years at this location - and very likely on through the center of the site of the Atlas tailings pile.

Of more significance is the fact that similar river gravels are widely distributed beneath the surface of Moab Valley (Figure 3) demonstrating that the Colorado River channel has, in the past, flowed directly through the site of the tailings pile.

None of these observations indicate a unidirectional migration of the Colorado River channel. However, they do prove that the Colorado River has flowed through the site in the past and they suggest the possibility of either significant subsurface instability or extreme channel scour at sometime during the recent geologic past.

Thickness and distribution of basin-fill sediments in the Moab Valley

The reports cited in the DEIS to substantiate the contention that the Colorado River is moving away from the tailings pile have not reported or considered all available data regarding the thickness and distribution of valley filling deposits in the Moab valley.

For example, the data developed by the groundwater studies of Gardner and Solomon and the results of subsurface investigations conducted by the Department of Energy in 2002 have not been consistently or carefully considered in DOE's subsequent reports. Specifically, the thickness and distribution of valley fill deposits beneath the tailings pile and mill site are certainly much more complex than reported in the November 2003 letter report. Figure 8 of this report (NE-SW Diagrammatic Cross Section, copied from Doelling et.al., 2002) does not include any of these data and shows only a very simplistic interpretation of the thickness and distribution of the valley fill. Yet no attempt has been made to correct this interpretation to show the implications of the additional borehole data. Also, the November 2003 letter report neglected to mention Doelling's cautionary note regarding his cross section. "The exact position or trend of this fault (?) is unknown. In fact it may not be a fault at all, but a dramatic thinning of units northwest of the bend in the Colorado River". Moreover, Gardner and Solomon's bore hole data for areas south and east of the river are not included in Figure 4 (Estimated Top of Gravel Surface) or Figure 5 (Approximate Quaternary Sand Thickness).

When all of the data are compiled, what they actually show is that the subsurface conditions directly beneath the tailings pile are much more complex than the highly simplistic and relatively benign picture presented by the November 2003 letter report. Indeed, these data indicate that localized subsidence of the valley floor directly beneath the tailings pile must be considered as a possible and potentially serious geologic hazard.

Moreover, available well log and bore hole data indicate that the valley fill is not thickest and deepest south of the present location of the river channel. Rather, these data

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show that the valley fill is thickest and deepest beneath or perhaps as much as several hundred feet north of the present river channel. Consequently, the position of 'The Sloughs' in the Matheson Wetlands is not directly related to salt induced subsidence of the valley filling sediments. Instead, 'The Sloughs' merely mark the lowland boundary between the Mill Creek-Pack Creek fan and the Colorado River fan. Therefore, even if the relatively slow subsurface subsidence of Moab Valley were to affect the valley's surface, there is no reason to suppose that continuing subsidence of the valley floor would cause the river channel to migrate away from the tailings pile. Indeed, if one assumes that the thickest and deepest valley fill deposits mark the position of maximum valley subsidence, then there would be, in actual fact, strong reason to suppose that continuing subsurfasce subsidence could cause the river to move closer the pile.

Rate and character of salt dissolution in the Moab Valley area

Recent measurements of the ages of the isolated remnants of multiple paleosurfaces, using cosmogenic isotopic dating techniques, have determined that even some of the highest mesa surfaces between Capitol Reef and Caineville Reef (west of Moab Valley and south of the San Rafael Swell) are little more than one million years old. All of the buttes, monuments, ridges, and canyons below these mesa tops have been formed by erosional processes during the past one million years. When this information is put into the context of the results of other geologic research, including radiometric age measurements of the volcanic caprock on Grand Mesa (about 6 million years old) and the igneous dikes in Cathedral Valley (about 4 million years old), these findings enable the compilation of a much more precise history of the erosional history of the Colorado Plateau.

The area of the central Colorado Plateau (and Moab Valley) has been subjected to more or less continuous erosion during the past 5 to 6 million years. During this time, the rocks and sediments that once covered the region to the tops of today's highest mountains have been eroding away at an average rate approaching one foot per thousand years. By comparison, average erosion rates in many areas of the American Southwest are only one or two inches per thousand years. The Colorado Plateau is, therefore, one of the youngest, most rapidly changing landscapes in all of North America, and the principal agent of all of this erosion is, of course, the Colorado River system.

The Moab Valley is the surface expression of a collapsing salt-cored anticline. The salt beds beneath the valley's subsiding floor are almost 2 miles thick. As the Colorado River and its tributaries cut down through the thousands of feet of rock that once covered this salt-cored anticline, tremendous volumes of rock were removed and the land surface gradually lowered. Eventually, probably sometime about two million years ago, circulating groundwater reached the level of the uppermost salt beds. As the salt dissolved, the crest of the anticline began to collapse forming the Moab Valley. As the river continues cut down through the plateau, the valley continues to subside.

The rates of valley subsidence and river downcutting are closely related. Most of the groundwater beneath the valley surface is a dense salt brine. As the river continues to downcut, fresh near-surface groundwater continues to mix with the brine promoting continued dissolution of the salt. Thus it is the River's downcutting that controls the

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erosional evolution of the Colorado Plateau and all of its component parts, including Moab Valley and the site of the Atlas tailings pile.

Absence of a cobble-gravel bedload downstream of the Portal

The November 2003 letter report regarding the potential flood hazard at the Atlas tailings pile observes that large gravels and cobbles are not found in the active river channel downstream of the Portal, except near side canyons. This report also maintains that the surface of Moab Valley is subsiding, and that because of this subsidence, coarse river sediments are being trapped in the valley. This reasoning is used to suggest that continuing subsidence will force the Colorado River channel to migrate south and east, away from the Atlas tailings pile and towards Moab.

Groundwater dissolving the massive salt layers far beneath the valley floor is, in fact, causing the slow subsidence of the valley's alluvial fill. But, the surface of Moab Valley is not dropping because of this subsidence. The Colorado River and its local tributaries deliver far more sediment to the valley floor than could ever be accommodated by the valley's slow subsidence. Therefore, ongoing deposition by the Colorado River and by Mill Creek and Pack Creek are the principal processes controlling the surficial geology and geomorphology of Moab Valley.

The correct explanation for the lack of cobbles and gravels in the active channel downstream from the Portal is quite different.

Of course, the steepness of a riverbed plays a central role in a river's ability to move sediment. Other things being equal, the flatter a river's slope - the smaller the size of the bedload sediment it can move. From Moab Valley all the way downstream to Cataract Canyon, the average slope of the river is very low, averaging only 15 inches per mile (0.025%). In contrast, the river gradient upstream from Moab Valley (between Dewey Bridge and Negro Bill Canyon) drops an average of five feet per mile (about 0.1%), and downstream in Cataract Canyon, the average drop is almost 12.5 feet per mile (0.25%). Therefore, channel sediments in and downstream of Moab Valley are mostly fine grained. Cobbles and other coarse materials are only moved during large floods. At all other times, only fine sediments are moved through this flat water section.

The sequence of fine-grained deposits overlying coarse-grained deposits is typical of many late Quaternary (less than 50,000-year-old) valley fill sequences in the Southwest. Generally speaking, the gravels were mostly deposited during late glacial times when precipitation was greater and river flows were larger (and/or very large floods were more frequent). The finer grained sediments were deposited during post-glacial (Holocene) times when precipitation was less (and/or very large floods were less frequent). This change in the grain size of alluvial deposits is typically most pronounced in those areas where river gradients are relatively low. Other things being equal, alluvial deposits in low gradient areas are a more sensitive indicator of changes in river flow. This is because declining river flows will first lose their ability to carry larger, heavier bed load materials in low-gradient (low-energy) river reaches. The result is the typical alluvial fill sequence where glacial age river gravels are overlain by post-glacial age river sands.

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Summary

The suitability of Atlas mill and tailings site for the long term disposal of hazardous waste has not been established by the November 2004 DEIS. The site was not originally selected out of concerns for human health and safety or for the preservation of environmental quality. Rather it was selected as a convenient place for the milling of uranium ore and a cheap place for dumping the enormous quantities of chemical and radioactive waste generated by that milling process. Therefore, there is no a priori reason to suppose that the site is suitable for long term waste disposal.

Analyses of the November 2004 DEIS and supporting reports clearly show that these documents do not present a realistic picture of the geologic and hydrologic conditions at the Atlas mill and tailings site. Careful and consistent analyses of available scientific data concerning the suitability of the site must be made within the context of accurate perceptions of how the Colorado River really interacts with the Moab Valley. Such analyses clearly show that the flood hazard potential at the Atlas tailings site is not diminishing, as the reports cited by the DEIS claim, because of a theorized southward and eastward migration of the Colorado River. Rather, the River has flowed across the tailings site in the past and very possibly could return to that course in the future. Furthermore, because the River's inner channel has, over the past 80 years, shifted closer to the pile and has become narrower and deeper, the potential for deep channel scour, sudden channel shifting, and catastrophic failure of the pile during large floods may well have increased significantly.

Contrary to the claims and speculations contained in the reports used by the DOE to support the inferences and conclusions presented in the DEIS, the following points are clear:

(1) An 80-year history documented by accurate registration of historic maps and aerial photographs clearly shows that the Colorado River is not migrating south and east away from the tailings pile. The high flood levees bordering the main channel have not shifted measurably. However, the south and east bank of the active channel between these levees has moved north and west, and it is now 150 to 300 feet closer to the mill site. And, the channel has narrowed and deepened in its new position.

(2) Courthouse Wash and Moab Wash have not caused the Colorado River channel to migrate away from the mill site. Rather, analysis and direct observation of high energy flows from Courthouse Wash demonstrate unquestionably that these floods have deposited sediments on the south side of the Colorado River channel, and therefore, have actively contributed to the northward migration of the river channel

(3) Available well log and bore hole data indicate that the valley fill is not thickest and deepest south of the present location of the river channel. Rather, these data show that the valley fill is thickest and deepest beneath or perhaps as much as several hundred feet north of the present river channel. Therefore, there is no reason to suppose that continuing subsidence of the valley floor would cause the river channel to migrate away from the tailings pile. Indeed, if the thickest and deepest valley fill deposits mark the position of maximum valley subsidence, the there would instead be strong reason to suppose that continuing subsidence could cause the river to move closer the pile.

(4) Available subsurface data also show that conditions directly beneath the tailings pile are much more complex than the highly simplistic and relatively benign picture

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presented by the DOE. Indeed, these data indicate that localized subsidence of the valley floor directly beneath the tailings pile must be considered as a possible and potentially serious geologic hazard. Moreover, comparison of surface and subsurface data along the northern margin of Moab Valley between Courthouse Wash and the mill site suggest the possibility that localized subsidence or extremely deep channel scour has occurred in this area sometime during the past 45,000 years.

(5) Although dissolution of the massive salt layers beneath Moab Valley is causing the slow subsidence of the alluvial fill within the valley, the valley's surface is not dropping because of this subsurface subsidence. The Colorado River and its local tributaries deliver far more sediment to the valley floor than could ever be accommodated by the valley's slow subsidence. Therefore, ongoing deposition by the Colorado River and by Mill Creek and Pack Creek are the principal processes controlling the surficial geology and geomorphology of Moab Valley.

(6) Finally, the geometry and position of ancient Colorado River gravels buried beneath the surface of Moab Valley clearly show that the Colorado River has in fact shifted back and forth across mill and tailings site in the recent geologic past.

In summary, there is considerable scientific evidence that important flaws exist in those studies indicating suitability of the Moab mill site for the long-term storage of hazardous waste. Particularly flawed is the contention that the Colorado River is presently and will continue to migrate away from the site. This contention is completely incorrect. The Colorado River channel is has not migrated south and east away from the Moab Mill site at any time in the past 80 years, and there is no reason to suppose that it will start to do so at any time in the immediate future.

Additional scientific study

Additional scientific studies focused on the potential flood hazard at the Moab Mill are needed to determine whether the site is a suitable place for the long term disposal of uranium mill waste. To be useful additional studies must significantly reduce the uncertainties that surround and confound our understanding of the complex relationship between the Colorado River and the Atlas tailings site. Specifically, such studies should determine whether or not there is significant potential for catastrophic flooding that could compromise the stability and integrity of the tailings pile. They should also address the uncertainties related to the downstream impacts of such an event.

The Moab Valley is a very unusual place – essentially one of a kind on the Colorado Plateau, in North America, and perhaps anywhere in the world. The formation of the Moab Valley is in large part the result of salt tectonics. The folding, flow, and diapiric rise of massive salt deposits from far beneath the earth's surface, and the dissolution of these deposits as the earth's surface is eroded down to the level of the rising salt are the principal processes that have shaped most of the large valleys of the Paradox Basin. And of all of these breached anticlinal valleys, the Moab Valley appears to be the only one where the Colorado River or any of its tributaries are downcutting more slowly than the valley is subsiding. This, in and of itself, makes the Moab Valley practically unique.

Moreover, the valley is located in the east central part of the Colorado Plateau, a region of very rapid erosion and landscape change. This part of the Plateau is one of the

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youngest landscapes in North America. And as the principal agent of this rapid erosion, the Colorado River is quite literally one of the dirtiest rivers in the world. That is to say, it carries more dirt or sediment per unit of flow than all but a few of the world's major rivers.

There is probably no other place on earth that is truly comparable to the Moab Valley. This makes the scientific study of this very unusual place all the more difficult. Earth science works best when there are many places where similar phenomena and relationships can be used for comparison with the area being studied Without the ability to make such comparisons, it is very difficult to test or verify the results and conclusions of the study.

Further complicating the issue is the fact that recent geologic times have been and continue to be times of changing climate. Since the waning stages of the last great ice age to the present time, climate change has been norm. Generally speaking, climatic conditions on the Colorado Plateau have become progressively warmer and drier throughout this time. However, conditions have also fluctuated dramatically between periods of relative moisture and extended drought. These changes and fluctuations have strongly influenced extremes of river flow and rates of landscape change throughout the region. Continuous measurements of river flow on the Colorado River have only been made for the past 91 years, and this limited record does not provide a sufficient base for predicting the future frequency or magnitude of very large floods.

We also lack much of the basic scientific data that is necessary to understand the complex relationship between the Colorado River and the Moab Valley. We do not have a clear picture of the rate of downcutting of the Colorado River. The many well preserved river terraces both upstream and downstream from Moab valley have not yet been carefully studied, and the ages of these terraces have not been determined. We also lack a clear understanding of the subsidence and filling of Moab Valley. The thickness and extent of the valley filling deposits are only approximately known, particularly on the Moab side of the river. Moreover, the depth of scour within these deposits during very large floods is not well established. More importantly, the ages of these deposits are only very imprecisely known even though several attempts have been made to date them. Therefore, we do not have (and perhaps may never have) sufficient subsurface data to understand anything more than the general details of the dissolution, subsidence, and valley filling processes.

Consequently, we do not know how rapidly the river is eroding downward, how rapidly the valley filling deposits are subsiding, or whether downward erosion and valley subsidence vary in time and space. In short, we have yet to learn very much at all about the natural system that immediately surrounds, supports, and potentially threatens the site of the Atlas tailings pile.

Studies Related to Potential for Catastrophic Flooding

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Among the areas of uncertainty identified by the Draft Environmental Impact Statement (DEIS) for on-site disposal of the mine tailings, that of "Catastrophic Floods" is of particular concern because of the possibility of channel migration into the tailings pile and flood erosion of the tailings. The assumption is made in the DEIS that a catastrophic discharge of 300,000 cubic feet per second will occur no more than once in 500 years. It is also presumed in the DEIS that the much smaller, once-in-100-year flood will reach 3 to 4 feet above the base of the tailings pile. Because these are only estimates, based on extrapolations from very limit stream-gauging data, we will be applying a technique over the next few months to directly test these figures by documentation of actual long-term flood behavior of the Colorado River at Moab.

During several days of field investigations in January of 2005, we identified multiple study sites along the Colorado River that preserve sand and silt deposited by the highest past flood stages of the river. The sites were located by an aerial survey on January 16. The sites include areas near Dewey Bridge and Salt Wash, which are upstream of Moab, and Shafer, Buck and Lathrop Canyons, all of which are downstream of Moab. Several sites were briefly observed from the ground and determined to be appropriate for a subsequent slack-water deposit-paleostage indicator (SWD-PSI) paleoflood hydrology (PFH) investigation. This investigation will occur over the next few months. It will include surveys at each site of elevations, geometry of the adjacent flood channelways, stratigraphy of the flood deposits, geochronology, and hydraulic calculations of the associated paleoflood discharges. The end result will be an estimate of the flood-frequency hazard for the Colorado River in the vicinity of Moab.

Data from the SWD-PSI PFH investigation will form the basis for estimating the potential for flood erosion and inundation of the tailings pile. This potential is critical because of the as-yet-unknown possibility for catastrophic flooding to distribute eroded tailings over the entire inundated region, including much of the city of Moab.

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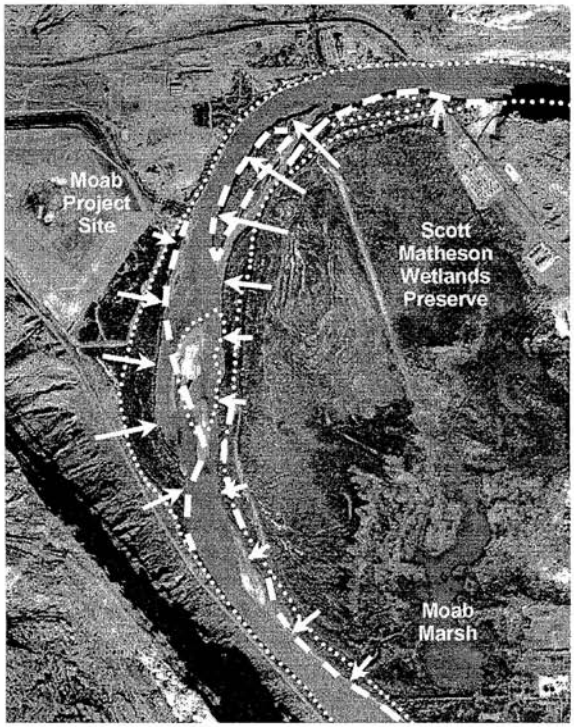
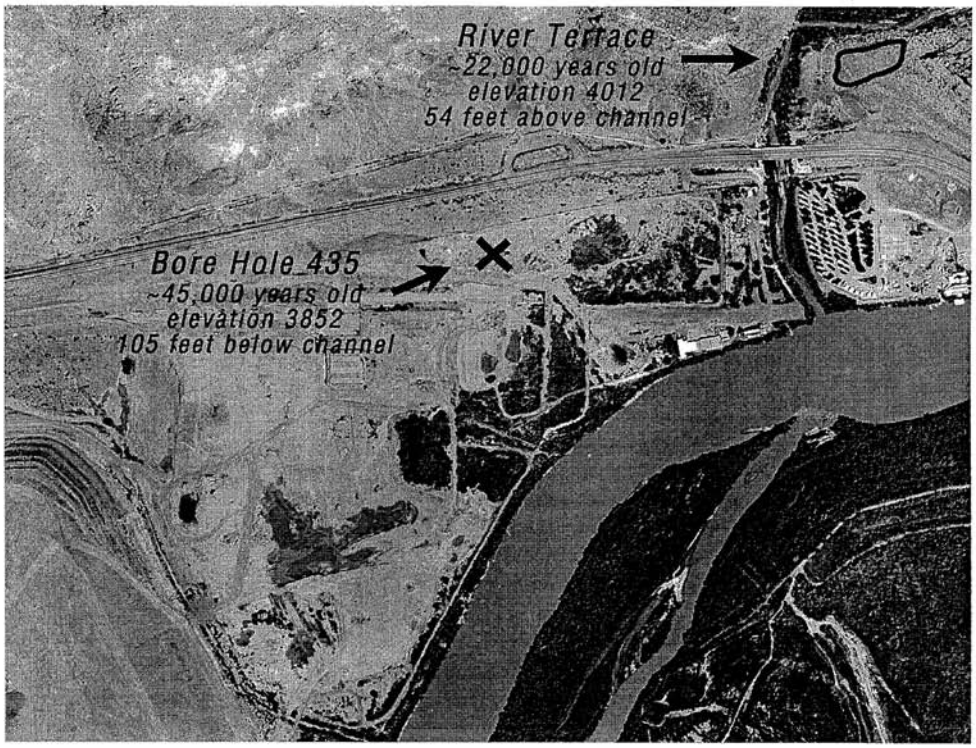
Figure 1



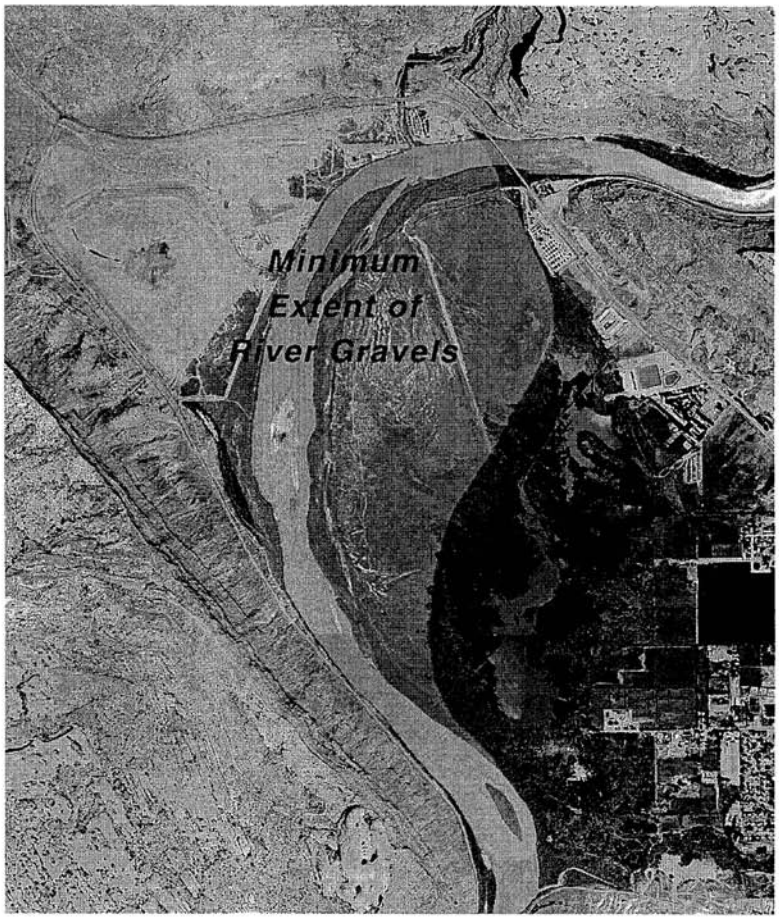
#429, p15

Figure 2



#429, p16

Figure 3



Document #433 Kain, Nancy Individual

From: Nancy [antdancing@cox.net]
Sent: Thursday, February 17, 2005 1:10 PM
To: moabcomments
Subject: Moab waste pile
Sirs,

Our shameful policy decision to ignore the Kyoto accord should not be followed by another enviornmental abuse. Please reconsider.
Nancy Kain
1733 Leisure World
Mesa, AZ 85206

Document #444 Owens, Stephen A. Arizona Department of Environmental Quality

Feb. 17. 2005 2:00PM No. 0147 P. 1

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ADEQ Arizona Department of Environmental Quality

Fax Cover Sheet

Date: February 17, 2005 **Total Pages:** 4 + cover

To: Mr. Don Metzler
Phone: 800-637-4575 **Fax:** 970-248-7636

From: Stephen A. Owens, Director

Phone: 602-771-2203 **Fax:** 602-771-2218

Re: Moab Federal Project – Review of DEIS
CC:

Comments:

Please see attached, thank you.

Feb. 17. 2005 2:00PM No. 0147 P. 2

ARIZONA DEPARTMENT
OF
ENVIRONMENTAL QUALITY

1110 West Washington Street • Phoenix, Arizona 85007
(602) 771-2300 • www.azdeq.gov

Janet Napolitano
Governor

Stephen A. Owens
Director

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February 17, 2005

Mr. Don Metzler
Moab Federal Project Director
U.S. Department of Energy
2597 B ¾ Road
Grand Junction, CO 81503

Re: Review of DEIS for Remediation of Moab Uranium Mill Tailings

Dear Mr. Metzler:

The Arizona Department of Environmental Quality (ADEQ) has reviewed the U.S. Department of Energy's (DOE) *Remediation of the Moab Uranium Mill Tailings, Grand and San Juan Counties, Utah, Draft Environmental Impact Statement (DEIS)* which addresses contamination from historical uranium ore processing. The agency appreciates the opportunity to comment and has outlined its concerns below.

Preferred Alternative

The DEIS states that DOE has not identified a preferred alternative at this time. The State of Arizona strongly supports the complete removal of the tailings and contaminated materials from the site and believes either the Klondike Flats or the Crescent Junction locations are superior to the White Mesa Mill site due to transportation, disposal, and environmental justice issues.

Alternatives

The DEIS outlines two major alternatives:

• *On-site disposal*, which would involve stabilization and capping of the existing pile and would take 7-10 years to complete at a cost of $166 million.

• *Off-site disposal* would take upwards of 8 years with costs ranging from $329 to $464 million, depending on the choice of final disposal location and transportation option. DOE has identified three locations in Utah as potential off-site disposal locations:

- Klondike Flats, about 18 miles northwest of the site;
- Crescent Junction, approximately 30 miles northwest of the site; and
- White Mesa Mill, approximately 85 miles south of Moab and within 6 miles of the Ute Mountain Reservation and the communities of White Mesa and Blanding, UT.

While the costs for off-site removal are 2-3 times higher, the actual timeframe for completion of the tailings removal action is shorter. ADEQ strongly encourages the DOE to consider off-site disposal as the preferred alternative for the following reasons. The proximity of the pile to the

Northern Regional Office
1515 East Cedar Avenue • Suite F • Flagstaff, AZ 86004
(928) 779-0313

Southern Regional Office
400 West Congress Street • Suite 433 • Tucson, AZ 85701
(520) 628-6733

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Colorado River and the potential for the river to migrate are key reasons to consider complete removal. Secondly, the need for stabilization of the site and the fact that on-site stabilization *will not eliminate* the continual source of contamination to groundwater, makes off-site disposal clearly the more comprehensive and environmentally protective alternative, in the long-term.

Of the three sites analyzed, both the Klondike Flats and Crescent Junction sites are preferable to the White Mesa Mill location. While both Klondike Flats and Crescent Junction will require construction of new disposal cells, both sites are in remote, sparsely populated areas with large tracts of state and federal land. Both are accessible by rail which would expedite the removal versus transport by truck. The environmental impacts to both sites will be similar.

The White Mesa Mill site is an existing disposal site but it is also the farthest from the Moab location. Rail access is not available so transportation options focused on truck transport or slurry pipeline. Use of the White Mesa Mill site would result in unique cultural and environmental justice impacts given its proximity to the Ute Mountain Reservation and the communities of White Mesa and Blanding. In addition, there are rich cultural resources that would be disturbed preparing the site for additional storage and the pipeline corridor.

Lastly, DOE estimates the site contains 11.9 million tons or 8.9 million cubic yards of material. There is limited discussion in the DEIS as to how these values were obtained other than references to field characterization studies, DOE's experience with similar sites and historical data. While DOE acknowledges there could be a significant difference between the calculated and actual tailings volume, there is *no discussion* regarding the impact of quantity discrepancies on the remediation efforts. The pile characteristic uncertainties may not impact the final engineering design but could dramatically affect final surface remediation costs and scheduling. For example, if the DOE has dramatically underestimated the volume of the pile or contaminated soils, the amount and hauling time of cover material for on-site disposal will be affected. If off-site disposal is selected as the preferred option, these uncertainties could have considerable impacts on the transportation options.

Transportation

For off-site disposal, three transportation modes were evaluated: truck, rail and slurry pipeline. Truck transport would use existing US-191 as the primary transportation route for hauling contaminated materials off-site and hauling borrow materials to the selected disposal site. An existing rail line runs from the Moab site north along US-191 and connects near I-70. Rail access exists to both Klondike Flats and Crescent Junction but would require some upgrades and additional rail sidings. Rail access is not available to White Mesa Mill and the option was not analyzed for that site due to technical difficulties, potential impacts and high costs. Lastly, the DEIS looked a slurry pipeline delivery to each of the potential disposal sites.

Given the usual highway tonnage limitations for truck transport, ADEQ questions DOE's time estimates for moving the material by truck, particularly in light of the uncertainties in the actual volumes. At a minimum, truck transport would noticeably increase truck traffic on US-191 for upwards of 8 years. If White Mesa Mill is selected, the truck traffic will travel through central

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Moab, already congested with local and tourist traffic. The rail option, after the relatively minor grade improvements and additional sidings, could move vast quantities of material with little or no impact on US-191 and would seem to be the fastest and most efficient option. Given the types of pollutants being handled, the slurry pipeline does not appear to be a good option and at the very least, DOE should require additional investigation into potential environmental impacts in the event of inevitable pipeline leaks or failures.

Groundwater Remediation

Groundwater remediation will be conducted under both the on-site and off-site disposal alternatives. As presented in the DEIS, the proposed system will cost approximately $11 million to design and construct, with an annual operating budget of over $900,000. Construction will take approximately 5 years and the system will be in operation for 75-80 years.

The DEIS indicates that DOE proposes to implement an active remediation system to intercept and control discharge of contaminated groundwater to the Colorado River. Because there are no alternatives discussed regarding groundwater remediation, there are few details of the actual remediation plan. The DEIS indicates that ammonia is the major contaminant of concern, however, "roll front" uranium deposits typically contain a variety of mineral species. Other potential contaminants include uranium; its daughter products radon and radium; molybdenum; copper; selenium; vanadium; and arsenic. However, there is no discussion of impact of other contaminants discharging to the Colorado River. There is mention of the contamination plume but no details regarding size, movement, or levels.

Based solely on the overview in the DEIS, ADEQ has the following comments regarding the proposed groundwater remediation strategy:

» It is not clear why it will take up to five years to intercept and contain the plume, given the low recharge rate estimates. The DEIS states that the pump and treat system will operate for 75-80 years but elsewhere it states the "groundwater under the Moab site would return to background levels after 150 years." Does this mean that following the 75-80 years of pump and treat, an additional 70-80 years of natural attenuation is needed to restore groundwater to natural background?

» If the preferred alternative is off-site disposal, removal of the tailings will involve the stripping off of layers that will expose the underlying material to leaching. How will DOE, during the active removal, limit the exposed material to leaching of additional contaminants?

Surface Water Quality

Because of the vital role of the Colorado River to the lives of millions in both the Upper and Lower Basin States, ADEQ strongly supports the state of Utah's request that the *chronic* surface water quality standards be used to ensure protection of aquatic species. This is particularly true in the case of ammonia which is one of the most prevalent contaminants in the groundwater and is the constituent of greatest ecological concern that is discharging into the Colorado River and adjacent backwaters. The groundwater contamination has been ongoing for decades and has

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been leaching into the river for decades as well. This has created a *chronic water quality condition* that acute water quality standards are not designed to protect against. The final Environmental Impact Statement should also Utah's surface water quality standards in addition to the federal Safe Drinking Water Act standards to ensure proper protection of human health, aquatic life and wildlife. The DEIS clearly states the aquifer is already compromised for drinking water purposes. Arizona is primarily concerned with attaining and maintaining a water quality that is protective of aquatic life and wildlife.

DOE's primary justification for using the less protective "acute" standard appears to be that use of the "chronic" standard would lengthen the duration of the groundwater remediation strategy. The DOE estimates is will take up to 80 years to reach the remediation target of 3 mg/L for ammonia but believes the remediation system will result in surface water quality that is protective of aquatic species within 5 years after the system begins treatment. It is unclear how these two statements can be true given that aquatic life can tolerate 3 mg/L as ammonia under a very narrow range of physical conditions.

The State of Arizona appreciates the opportunity to review and comment on this important project. As you know, Arizona counts on the Colorado River for fishing, recreation and providing drinking water to millions of its citizens. It is ADEQ's responsibility to the people of Arizona to ensure that water quality problems are identified and addressed appropriately, especially in a state like ours where water is such a precious and limited resource.

Sincerely,

Stephen A. Owens
Director

Document #445 Stapleton, Maureen A. San Diego County Water Authority

San Diego County Water Authority
4677 Overland Avenue • San Diego, California 92123-1233
(858) 522-6600 FAX (858) 522-6568 www.sdcwa.org

February 17, 2005

Moab DEIS Comments
U.S. Department of Energy Grand Junction
2597 B¾ Road, Grand Junction, CO 81503

RE: *Remediation of the Moab Uranium Mill Tailings, Grand and San Juan Counties, Utah, Draft Environmental Impact Statement* (EIS)

Dear Mr. Metzler:

The San Diego County Water Authority (Water Authority) is a regional public agency responsible for providing wholesale supplemental water supplies to the more than 3 million residents of San Diego County, California. Last year, Colorado River water comprised approximately 66 percent of the total supply served to these people. Historically, San Diego County has relied upon Colorado River water supplies for 50 to 100 percent of its total water supply. Consequently, activities that affect Colorado River water quality are of vital interest.

The Water Authority has reviewed the draft Environmental Impact Statement (EIS) for Remediation of the Moab Uranium Mill Tailings, Grand and San Juan Counties, Utah. The EIS describes various alternatives for remediating contamination resulting from the uranium mill tailings located immediately adjacent to the Colorado River. The current location of this approximately 12 million-ton waste pile results in the continued discharge of contaminants to surface and ground waters directly connected to the Colorado River, a prime source of drinking and irrigation water for tens of millions of people in the downstream states of Arizona, Nevada, and California, as well as the Republic of Mexico.

This demonstrated source of water supply contamination has been of concern to the Water Authority for a number of years. Because of continued heavy reliance on Colorado River water, the Water Authority is opposed to any remediation alternative that would leave the tailings pile in its present location. In addition, site remediation must include increased water quality monitoring and active measures to cleanse groundwater of contaminants to meet applicable water quality standards.

Relocation of the tailings pile and groundwater restoration would help to protect the valuable water resources of the Colorado River for future generations. This water supply and the health of millions of people are too important to leave to chance. Moving the pile would lessen these risks significantly. Please retain the Water Authority on your mailing list to receive future notifications regarding this project. Thank you.

Sincerely,

Maureen A. Stapleton
General Manager

A public agency providing a safe and reliable water supply to the San Diego region

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Document #446 Nelson, Charles Individual

Speed Message

#446, p1

To Moab DEIS Comments
U.S. Department of Energy, 2597 B 3/4 Road
Grand Junction, Co 81503

From Charles Nelson
P.O. Box 940
Moab, Utah 84532-0940

Subject Comment on Atlas Tailings Draft EIS

Date February 12, 2005

As a Resident of Grand County, Utah I am concerned how the Atlas Tailings will be removed because of the dust from the Tailings in the air when the Pile is disturbed. There is concern that it is said to be toxic to the Health of people and Wild Life, therefore the situation needs to be taken in advisement by Knowledgeable People.

Sincerely,
Charles Nelson

P.S. Please consider this Newspaper Article Opinion from The Salt Lake Tribune - 1/30/05

Signed

WilsonJones
Carbonless

88

No sound reasons exist to move the Moab tailings pile

NOEL DE NEVERS

The Jan. 15 *Tribune* reported that if the biblical flood returns, in addition to covering the whole town of Moab with water, it will wash the Moab tailings pile into the Colorado River. Thus the magic words were again spoken: radioactive tailings, Colorado River, drinking water.

These words silence any discussion of whether it is worthwhile to spend several hundred million dollars moving an 11 million ton pile of modestly radioactive dirt from one place to another.

That pile is the residue from the Atlas uranium mill which operated nearby from 1950s to 1984. The federal government is committed to protecting all such piles in the U.S., by covering them with soil and vegetation to prevent human contact and prevent groundwater from flowing through them. It will cost about 200 million federal dollars to cover and stabilize the Moab pile.

The principal toxic materials in the pile are radium, uranium and ammonia. The approximately 10 pounds of radium and the about 1,000 tons of uranium in the pile are practically insoluble in water; they can only get out of the piles if someone digs them up. But radium emits radon gas, which can cause lung cancer.

Radon oozes out of the ground in minute quantities everywhere. Every breath an adult takes contains about 10 radon atoms. Covering the pile with dirt reduces the emission of radon gas, but not to zero.

The approximately 5,000 tons of ammonia in the pile, although 20 times as dilute as the household cleaners sold in supermarkets, is a strong enough ammonia solution to be toxic to fish. Current plans to cap the waste include plans to prevent ammonia from seeping into the river.

Those who want the dirt pile moved to another location before it is covered with soil and protected from water seepage, including apparently all of Utah's elected officials, fear that the pile will leak poisons into Lake Powell, mostly by rainfall seeping through it, but based on the article in the Jan. 15 *Tribune*, the fear that a mega-flood could wash it all into the river adds to the urgency of moving it.

What would happen if, for some reason, somehow, the whole pile was transferred into the Colorado River and flowed into Lake Powell? There, the solids would all settle to the bottom and be covered by the mud, sand and gravel which the Colorado River deposits in the upstream end of Lake Powell ever year. That annual deposit is roughly five times the size of the Moab tailings pile. All of the insoluble radioactive materials would be buried in that mud pile.

The volume of Lake Powell, when full, is about 4,800 times the volume of the tailings pile, so the ammonia, the principal soluble toxic material in the pile, would be diluted by a factor of 4,800, easily meeting the federal water quality standard for ammonia. During the mega-flood, while the pile was being transported to and mixed with Lake Powell, the waters would be very muddy and the ammonia would not be totally diluted, so there would probably be fish kills, and the water would be unsuitable for drinking.

But in a flood strong enough to submerge Moab, that would be the least of our worries. When the flood was over, the pile would be safely stored at the bottom of Lake Powell, the insoluble radioactive materials would stay there and Lake Powell water would be safe to drink.

If we move an 11 million ton pile of mildly radioactive dirt somewhere else and cover it, it will be just as dangerous to those who would dig it up as it is at its current location. It will continue to emit modest amounts of radon gas for geologic time, wherever it is. It poses no significant threat to human or animal health if some or all of it leaks into the Colorado River.

If the pile poses no more threat to human health where it is than it would somewhere else, then it makes little sense to spend several hundred million additional dollars moving it. If we want to spend that much to correct some poor land use planning and remove something unsightly, we should be honest enough to admit that is our reason and should stop speaking the magic words, radioactive waste, Colorado River, drinking water.

My position is not pronuclear; it is anti-hysteria and anti-deception. Utah, the United States and the world have real, important environmental problems we should deal with. Squandering several hundred million dollars by moving the Moab tailings pile before covering it is not good environmentalism, nor good government.

Noel de Nevers is a registered chemical engineer in Utah. For a longer, more detailed version, send an e-mail request to Noel.deNevers@utah.edu. No hate mail, please.

#4416.02

Document #488 Sakrison, Dave City of Moab, Mayor

February 18, 2005
City of Moab Comments
Atlas Tailings Pile
DOE EIS 2005

I Removing Dangerous Materials from the Flood Plains of the Colorado River.

"Storage of highly volatile, toxic or reactive materials" in an area that has "even a slight chance of flooding" *is prohibited.* This is Department of Energy's (DOE) interpretation of the federal code at 10 CFR 1002.4 (Compliance with Floodplain/Wetlands Environmental Review). This regulation was implemented to protect people and environments from the harmful effects of imprudent actions within designated floodplains and wetlands. The Atlas Tailings Pile contains "highly volatile, toxic and reactive material" and is located in a recognized floodplain. The current Environmental Impact Statement, as written, denigrates the possibility of polluting the Colorado River should the tailings pile be kept in place. DOE's experience with other similarly located tailings piles in the area, at Monticello and Green River, should be followed. The failure to contain these two smaller tailings piles on porous substructures without protective sub-layers required DOE's to eventually move both piles after having first attempted to contain them on site. These previous failures challenge DOE's assertion that the integrity of the Colorado River can be protected by leaving the Atlas Tailings Pile in place.

Federal regulations also require DOE to consider the possibility and consequences of long-term or catastrophic flooding of the Atlas Tailings Pile. Long-term flooding might arise from river migration or subsidence. DOE argues that the first, river migration, has tended south to southeast because of the rapid dissolution and collapse of the Paradox Formation in that direction. Independent geologists and the Utah State Geological Service challenge this assertion by correctly orientating the historical flood maps to show that the Colorado River has migrated north, northwest and southeast away from Moab and towards the tailings pile. This is the very pattern one would expect from the current meandering pattern of the river. It is the north tending arch of the river, propelled by heavy sediment loads, that creates a long-term threat to the integrity of the north bank on which the tailings pile is located. Geological records reasonably describe a river that moves sinuously and forcefully, back and forth between the portals, inherently threatening the integrity of the tailings pile. Legacy Management, the bureaucracy created by DOE to monitor and solve for the next 1000 years, perceived threats to the integrity of the tailings pile, can not be reasonably argued given the length of time and inconsistency of federal bureaucracies and budgets. DOE's commitment to protecting the tailings pile in a flood plain has little if any historical substance. Even if such a commitment were imaginable, one thousand years is but a fraction of the time needed to mitigate the site's long-term pollution potential.

What is the possibility that a catastrophic flood might occur during the "legal" lifetime of the radioactive danger? The "probability" of such catastrophic flood limits "the storage of highly volatile, toxic or water reactive materials" in a floodplain. A 100 year flood of

99,500 cu ft covers the flood plain up to 2' on the tailing pile and has a 1% chance of occurrence. A 500 year flood of 123,500 cu ft could reach 27' up onto the pile. The maximum flood considered by DOE was a 10 hour, 150,000 cu ft flow which is ½ of the Probable Maximum Flood (PMF) considered by the Nuclear Regulatory Commission for the Moab site (1999 EIS). With half the volume and force of a PMF, 20 to 80 percent of the tailings pile could wash into the river. The fact that a 100 or 500 year flood event has not occurred historically does not eliminate the probability of such an event. A scenario can be constructed where significant precipitation events in the 21,100 sq miles of up-stream Colorado drainage could cause the collapse of one or both of the up-stream dams. Repeated "precipitation events" could have catastrophic impacts on the tailing pile, protected or not. It has become politically inappropriate to infer the effects that global warming might have on localized weather events. However, the Glen Canyon Dam was almost breached by the floods of the early 80's. The storms of 2005 have shown their "locally" destructive nature across the Southwest.

Using historical flood data may in the uncertain future become outdated, even dangerous if probability for catastrophic floods is thereby limited. The "Probable Maximum Flood" while having a statistically low possibility could happen even within the 1000 years of legally required protection window. The USGS study indicates that there may have been at least two floods in the last 800 years that could have washed the entire tailings pile into the river. Similar subsurface gravel bed elevations and the indication of past river channels under the tailings pile substantiate the definition of "probability". Given these arguments of at the least, "the slight possibility" of structural failure, DOE is mandated by the 10 CFR 1033.4, to *prohibit* (DOE's own words) the continued storage of "highly volatile, toxic or radioactive materials" on the floodplain of the Colorado River. To take any other action is irresponsible and dangerous.

2 Socioeconomic Factors of Capping the Atlas Tailings Pile in Place.

This EIS focuses solely on the economic benefits derived from revenues generated by the preparation of storage sites and/or the transportation modes used to move the tailings. The economic benefits of the various alternatives are economically significant and would temporarily improve the economy of Moab. However, what are blatantly lacking in the EIS are the negative socioeconomic consequences of capping the tailings pile on the banks of the Colorado River. Previous paragraphs outlined the probability of long-term or a catastrophic flood would have on the integrity of the tailings pile. That such events would have significant impact on Moab's future recreational viability is a given. It is also important to point out that the enshrinement of a radioactive monstrosity at the entrance to Moab would of itself remind residents and visitors alike that it only a matter of time before the pile could be swept into the river. All those who travel 191 would be impressed with the vision of a 130 acre, 97 ft tall geometrical monolith dedicated to the storage of radioactive waste. It would be an inappropriate historical marker for the thousands of miners who have suffered and continue to suffer the effects of radioactive poisoning. Not only would the tailings pile violate Bureau of Land Management river corridor visual guidelines, it would intimidate future recreational users of the Colorado River. The future economy of Moab, dependent on tourism and recreation, would thereby suffer the long-term consequences of an enshrined radioactive catastrophe waiting to happen. Leaving the pile as a constant reminder, is a slap in the face of a community who

willing did the “dirty” work of supplying necessary uranium to a Nation threatened by nuclear war. The appropriate response by DOE is to act now to remove the Atlas Tailings Pile.

III White Mesa Mill Disposal Alternative

The City of Moab is strongly opposed to moving the tailing pile through the City by truck or slurry pipeline. Downtown Moab is classified by the Utah Department of Transportation as a very congested area. The additional 275% increase in downtown truck traffic from 642 to 1,458 trucks, even when spread over a 20 hour day, would create a dangerous situation. Construction of a slurry line would remove much of the truck traffic but it would not eliminate it entirely. %00,000 tons of radioactive materials would still have to continue to travel through downtown Moab. A slurry line would have to be constructed along an already heavily used utility easement. This easement already contains highly volatile gases. Given the type of slurry material to be transported, the possibility of radioactive leaks or breaks is too high. The risk of exposure by truck or slurry accidents is unacceptable.

The route of the proposed slurry corridor would place the line beneath the Colorado River and through protected wetlands. The 430 acres of pipeline disturbance needed to reach the White Mesa Mill site would have adverse impacts on previously revegetated areas. The 28.7 miles of new right of way would also have negative impacts on the environment. Wetland areas could be compromised, and endangered species threatened. There is an estimated 51 to 101 cultural sites along the slurry route that would be affected in addition to the 5 potential cultural sites at White Mesa itself. Surface and ground water are also threatened by the storage of the tailings at this site. The prudent federal action is to not unnecessary endanger the residents of Moab or the surrounding environment by moving the tailings south to the White Mesa Mill for deposal and profit.

Thank you for considering our concerns on the need to move the Atlas Tailings Pile from the banks of the Colorado River.

Dave Sakrison, Mayor
City of Moab

Document #504 Suarez, Michael K. Individual

#504

Michael K. Suarez P.O. Box 1186 Moab, UT 84532-1186 435-259-8317 mangotea@frontiernet.net

February 14, 2005

Moab DEIS Comments
US Department of Energy
2597 B ¾ Road
Grand Junction, CO 81503

Re: Remediation of the Moab Uranium Mill Tailings

Gentlefolk,

Please safely move the Moab mill tailings pile, by rail, to Crescent Junction.

The pile cannot be capped in place. The tailings are leaking toxic hazardous materials into the Colorado River. They threaten to contaminate the Matheson wetlands. If floodwaters reach the pile, the Colorado River will be contaminated by those tailings, endangering those who rely on the river for drinking water and recreation. The worse the flood, the greater will be the contamination.

The Department of Energy (DOE) studies and conclusions concerning the tailings pile are fatally flawed. In spite of all contrary evidence, DOE concludes the river is migrating away from the pile; actually, it is migrating towards the pile. DOE's assessment, limited in scope, contains other unsubstantiated assumptions. Flaws in the report have been noted in articles by Dr. John Dohrenwend, published in the Moab Times-Independent on January 27, February 3 and February 10, 2005. His conclusions and supporting evidence are also contained in his "Preliminary Review of the Department of Energy's Assessment of Potential Flood Hazards at the Moab Project Site (Atlas Tailings Pile). His e-mail address is dohrenwend@rkymtnhi.com.

Remediation of the pile must not be done "on the cheap" by, for example, leaving the pile in place or moving it in a manner which allows dust from the pile to be dispersed into the air that Moab's citizens breathe. Remediation in a manner dangerous to us, just because it's cheaper, masks the real costs of uranium mining and misleads citizens facing mining operations in their communities.

Crescent Junction storage puts the pile at the location furthest from human activity. It would also be cheaper than a slurry pipeline to White Mesa.

Thank you for your time, attention and consideration.

Sincerely,

Michael K. Suarez

Cc: U.S. Senator Hatch, U.S. Senator Bennett, U.S. Rep. Matheson, Gov. Huntsman, State Sen. Dmitrich, State Rep. Mathis, State Rep. King

Document #505 Suarez, Mary Individual

#505

MARY SUAREZ
P. O. Box 1186
Moab, UT. 84532-1186
(435)259-8317
mangotea@frontiernet.net

Moab DEIS Comments
US Department of Energy
2597 B ¾ Road
Grand Junction, CO 81503

Re: Remediation of the Moab Uranium Mill Tailings

Dear Sirs,

I am a Moab resident. My husband and I moved here to retire and plan to live here the rest of our lives. We are very concerned about what happens to the mill tailings not only for our selves but for the young families and children who live in Moab.

The Moab mill tailings have been a serious problem for many years. We cannot delay; the tailings must be moved now to Crescent Junction by rail.

There are many flaws in the DOE report regarding the river migration which undermine the safety of leaving the pile where it is.

There is no mention of a near certain flood along the Colorado River (2002 National Research Council report) and the catastrophic effects that would cause. The damage to people and communities not only in Moab but all the way down stream would be catastrophic if this uranium pile is washed into the river. The contamination would cause the entire river to be closed off for generations. This would affect 25 million people living in Utah, Nevada, Arizona and California.

As a resident of Moab I am concerned about the current contamination of ground water which affect us now and everyone else down stream.

Mill tailings have been moved from Grand Junction, Rifle and Durango because they were close to a river. Now is the time to move the Moab pile.

The residents of Moab need to know that enough money will be put into the moving of this pile to mitigate blowing contaminated dust into our community during the move.

We expect and deserve action now.

Yours truly,

Mary Suarez

Cc: Senator Hatch, Senator Bennett, Rep. Matheson, Governor Huntsman, Senator Dmitrich, Rep. Mathis, Rep. King

Document #515 Millard, Charles Individual

From: Chuck & Cheryl [cherylannmillard@netzero.net]
Sent: Wednesday, February 16, 2005 4:02 PM
To: moabcomments
Subject: Don't Drink The Water

As a certified HAZWHOPPER First Responder & D.O.T. Certificate holder since 1993, Receipt #30194, I was most interested in responding in regards to the SUPERFUND site at Moab, Utah. I think what struck me first, was the photograph the San Diego Union ran of the site on 2/13/05. If this is representative of the conditions at the stockpile area today, I think it would be even harder to delay site remediation. There seems to be a lack of even the most fundamental controls in place to provide containment, and even less in place to prevent intrusion by the river, only 750 feet away.

It was only after a long hard lessons did we learn of the dangers our own careless disposal of wastes during our countries nuclear programs. These learned lessons would become realized with the SUPERFUND creation and 29 CFR regulations that followed. The most important sites slated for remediation always included the same important factors, containment and groundwater sources, along with the obvious health dangers to vast areas having contaminated water supplies for years to come. Savanna River Project sat on a aquifer that was the water supply of many southern states that had no idea that a site so far away would affect them or their health. Hanford, on the Columbia River,contaminated God knows how many lives and trillions and trillions of gallons of water, the effects to be learned only after hundreds of years of studies.The Rocky Mountain Flats site had material that escaped containment that wasn't detected until the barrels that were to be moved were found to be empty and the groundwater in the area is still contaminated and will be for years to come. We all remember Love Canal and the terrible price paid by citizens who had no idea of what was in their back yards. Yet today, we seem to sit here and ignore these lessons and continue to pollute the things that are in fact, the very essence of life on this planet. Water is what makes Earth different from all other known planets in our solar system. It is the reason for life being here, period.

The reason for delaying action at this site can only be classified as gross negligence. The only other reason being gross ignorance. Any person with the least bit of training or experience knows the guidelines are clear. The SUPERFUND mandates are very precise on what must be done at this site. There has been a Presidential order to your Department to remove the stockpile and remediation of the groundwater. I really don't understand why we are waiting for some, as yet, unappointed undersecretary of the Department of Energy to make a decision that has already been made time and time again. Further delays, lack of funding by the current administration, leaving the pile in place, would all constitute violations of the law. These laws were enacted to protect both the people and the resources that are placed under your Departments control.

To close, I see the option of transporting the waste to a mill to dispose of the waste in a pipeline as the safest, most responsible means of correcting the problem. Putting trucks on our highways laden with these compounds to go bury them some place else seems very shortsighted and unacceptable. After all, there is no reason to delay action further. Get the funding required to accomplice the task at hand, and GET IT DONE ! Or maybe you would like to drink the water from this irreplaceable source that so many of us depend on.

Charles Millard
San Diego, Calif

Document #527 Tielens, Arthur J. A.J. Tielens and Associates

#527, p1

A.J. Tielens & Associates Extractive Metallurgy

U.S. Department of Energy
Moab DEIS Comments

Grand Junction 2597 B3/4 Road
Grand Junction, CO 81503

Arthur J. Tielens
Consulting Engineer

P.O. Box 28388
San Diego, Ca 92198

14 February 2005

Re: 130 Acres of Toxic Waste Located at 750 Ft from the Colorado River, near Moab, Utah, as described in the "San Diego Union" of 13 February 2005.

Dear Madam, Dear Sir,

According to above captioned article in the San Diego newspaper, the public is invited to comment as to how the Department of Energy should deal with the toxic metallurgical waste deposit

Apparently, two past proposals have recommended to dig up the waste pile and relocate the waste material some 30 miles away, at an area where ground water pollutiuon could be (largely) prevented by placing a synthetic liner. In such case, pumping the waste material would likely be more economical than trucking, assuming the toxic material has thixotropic properties which is usual the case when handling metallurgical waste material. Obiously, the drainage of the displaced material must be dealt with since it will contain toxic chemicals. To minimize drainage, the deposited waste could be treated with burnt lime. Economics will decide the practicality of this approach. These two proposals will eliminate the danger of further contaminating the Colorado river.

The third option recommends to pipe the waste material to a milling operation where the radio active component would be removed. In such case, the remaining toxic waste has to be dealt with and a "new" totally enclosed waste

#527, p2

A.J. Tielens & Associates Extractive Metallurgy

disposal system must be put into place, in accordance with the environmental rules and regulations. This proposal has also the advantage of not further contaminating the Colorado River.

The fourth option would be to cover the waste pile with an adequate thick layer of impervious clay. It can be assumed that in such case precipitation will not penetrate the pile to a great extent and that it can be removed from the pile by a proper drainage system.
However, this fourth proposal has the following disadvantages.

- Drainage of toxic compounds (inside the pile) will continue polluting the ground water. It is not known as to the magnitude of such ground water pollution as the News Article does not indicate whether the original disposal site has been provided with a synthetic or clay seal , nor gives the News Article information on the design of the drainage sytem.
- The pile is close to the Colorado River and heavy river flooding could entrain the toxic materials into the river water, with disastrous consequences.

Relocating the toxic waste some 750 feet further from the river may prevent such a scenario. However the cost my not be appreciably below the cost of removing and relocating the waste deposit elsewhere to an area where precipitation is low and control of preciptation drainage can be optimized.

From the environmental viewpoint, my conclusion would be to remove the waste pile as given in case 1, 2 or 3. However, it should be emphasized that scant information is available to the undersigned so that a final recommendation cannot be given as to the optimum method to deal with the toxic deposit.

The following information is needed to give a final recommendation:

1. Detail chemical analysis of the toxic waste
2. Detail physical analysis of the metallurgical waste, such as particle size distribution, permeability and thixotropic charteristics of the deposited waste.
3. Temperature, precipitation and evaporation data at site, average monthly, daily and duration of maximum intensity.
4. Location of water table
5. Wind velocites, monthly average, daily maximum and its maximum duration
6. Earth quake conditions at site
7. Availabilty of nearby impervious clay material

#527, p3

A.J. Tielens & Associates Extractive Metallurgy

8. A visit to the present and future waste disposal sites

The undersigned has extensive experience in the design and operation of toxic metallurgical waste disposal systems, in North and South Americas, Europe, the Middle East, India and Australia and is at your disposal for arriving at the optimum economic and environmental decision as to dealing with the described toxic waste pile at Moab, Co.

Sincerely yours,

Arthur Tielens

Arthur J. Tielens.

Tel. (858) 673-1935
E-mail. atielens@san.rr.com

Document #535 Moran, Mary Individual

#535, p1

Moab DEIS Comments
U.S.D.O.E., Grand Junction
2597 B ¾ Road
Grand Junction, CO 81503

February 15, 2005

I have attended some of the scoping meetings, public hearings, and the National Research Council meetings in Moab since 1991 concerning the fate of the Atlas/Moab Tailings pile. I've written letters before and commented in the National Research Council meetings. I now submit these comments on the draft EIS. My basic advice is to move the pile, move it north, and move it now.

The proposal to ship wastes to the White Mesa site is not only the most expensive, it is ridiculous to think of imposing this on the White Mesa UteTribe, ridiculous to think of using the Colorado River's over-allocated water to slurry the waste across or under the Colorado River, through The Nature Conservancy wetlands and the town of Moab (both of which would fight it intensely, which I don't believe is mentioned in the DEIS) and then on for another 80 miles to the disposal site.

Most of my comments in this letter will concern a few of the many, many reasons that the alternative for capping the pile in place is a bad one. But first, I have a general comment. The DEIS quoted one part of the Floyd Spence Act, passed by Congress in 1999, saying that the "DOE prepare a remediation plan to evaluate the costs, benefits, and risks associated with various remediation alternatives." But they didn't mention the part of the act that said that the pile was to be moved off site. Here is the language:

> "Remediation—Subject to the availability of appropriations for this purpose, the Secretary shall conduct remediation at the Moab site in a safe and environmentally sound manner that takes into consideration the remedial action plan prepared pursuant to section 3405 (i) of the Strom Thurmond National Defense Authorization Act for fiscal Year 1999 (10 U.S.C. 7420 note; Public Law 105-261), including—
> ***(A) ground water restoration; and***
> (B) ***the removal, to a site in the State of Utah, for permanent disposition and any necessary stabilization, of residual radioactive material and other contaminated material from the Moab site and the floodplain of the Colorado River."*** (emphasis added)

What could possibly be DOE's reasoning for not including this directive? Most other uranium mill tailings piles have been moved. In fact, all of those in river floodplains except for the largest one on the largest wildest river have been moved. And that is the tailings pile that this DEIS addresses.

Though there are many reasons that capping the pile makes no sense, I will concentrate on the following few:

1. Possibility of a flood event transporting substantial amount of tailings into the river;

#535, p2

2. Effects of a large amount of tailings in the river on the people of Moab and the 26 million people downstream, as well as ecosystem effects;
3. Possibility of channel migration toward the pile (probably in a flood event so not really a separate issue);
4. Lack of insight into time scales involved.

1. The DEIS concludes that the pile is unlikely to flood in the next 200 years, other than possible slow overbank waters touching the nearest toe of the pile (as happened in 1984, at a 70,000 cfs flow). At the recent public meeting in Moab, and in analysis by geologist John Dohrenwend and other experts, numerous reasons for disagreement with the DOE analysis of the likelihood of flooding were laid out, and I will not repeat them all here.

One factor I didn't hear addressed at the meetings or in my look at the DEIS is the possibility of a dam failure upstream. Most of the time the upstream dams, especially Blue Mesa and Morrow Point Dams on the Gunnison River and McPhee on the Dolores River, but also the many small dams on all tributaries upstream, probably decrease the magnitude of snowmelt high flows on the Colorado River. They're not giant dams and they're a long ways upstream, so might not influence the floods tremendously, but there is some influence. However, dams upstream mean that there is the potential for dam failure upstream.

Consider Glen Canyon Dam in the late spring of 1983. The flow of the Colorado River in Grand Canyon just downstream of that giant dam had had much smaller seasonal highs since the dam went in twenty years earlier. Flow was largely controlled by power demands. But that spring the reservoir behind the dam was almost full, the mountains had an unusually high snowpack, and then there was a regional warm spell with a bunch of rain. Perhaps dam managers have learned from almost losing this dam that year to keep more room in the reservoirs for the vagaries of spring snowmelt. And perhaps not. In 1983, when Glen Canyon Dam was shaking, the spillway outlets were spewing out red sand and house-size boulders coming from the bedrock below the dam, and the river was flowing almost 100,000 cfs in an effort to get rid of water before it rose over the top of the dam, we saw the unpredictability of what can happen with a river. If that dam had gone, Hoover Dam and every dam downstream would have gone with it, not to mention the people living along the river from Glen Canyon Dam to the Colorado River Delta in Mexico.

The dams on the Dolores and Gunnison aren't as big as Glen Canyon, but if the upper Gunnison dam went, the next one downstream would go, and that would generate a bigger flood than nature could have done on its own before dams came into play.

The DOE person responsible for choosing the preferred alternative should take a long and close look at the historic photos of the 1917 flood in the Moab Valley, when the Colorado River flowed at 76,000 cfs. They should be sure to compare the limits of the flooded area with a present-day map or photo of Moab. They should think about the much larger flood in 1884, when the river flowed at approximately 125,000 cfs. Then they should think carefully about the unpredictable nature of floods on this river, the dams upstream, and

#535, p3

the fate of the town of Moab and the 26 million people downstream who use the water. Unfortunately, the DEIS has misleading discussion about the likelihood of a large flood, and ignores some factors that could add to the likelihood. And the key is that if there is ANY possibility of flooding the pile in the next 1000 years, the pile should be moved.

2) The DEIS downplays the impacts that a large flood event would have on the town of Moab and on the 26 million people downstream.

The DEIS assumes that contaminants would wash downstream of Moab and disperse to safe levels relatively quickly, and that there would be no issues downstream beyond Lake Powell. But various toxins attach themselves to silt or clay particles, or exist in heavier compounds, and disperse differentially, thus settling out and concentrating in specific settings, such as backwaters along the river or the deeps of Lake Powell. We simply do not know enough to be able to predict where different toxic substances would concentrate, or how far downstream they might disperse.

If a flood inundates the pile, it will probably inundate the Matheson Wetlands across the river, and perhaps parts of Moab adjoining the wetlands. If some of the toxic materials make it across the river, and fine clays concentrated with toxic compounds settle out, what will be the short-term and long-term health and economic effects on the people of Moab? Will they have to be re-settled elsewhere while the valley is decontaminated over a number of years? The DEIS does not address this scenario.

The DEIS assumes that in the case of a flood breach to the pile, the contaminants won't go beyond Lake Powell, and since all there is in between Moab and Lake Powell is a 110-mile river canyon with no people living there, that no humans would be impacted. First of all, this stretch is a gorgeous river canyon largely within Canyonlands National Park, home to a complex ecosystem of wildlife and plants including endangered fish that depend on the river, and home to a multi-million dollar per year river rafting industry. Second, it isn't clear what vision the preparers of the DEIS had of Lake Powell over the next 200-1000 years or beyond. Did their modeling assume a static Lake Powell of 20 years ago, filled to the brim, or the current Lake Powell, half empty due to drought but containing much more sediment fill from the river inputs of the intervening years? Or did they model change in Lake Powell over the years, and its eventual demise when it fills with sediment? Lake Powell is definitely not a permanent entity, and the toxins in the waste will outlive the reservoir by orders of magnitude.

Most of the 26 million people downstream who use the water live in southern California. Some live in the Imperial Valley and irrigate food crops sold all over the U.S. with Colorado River water. Some water users are over the border in Mexico, where the last of the Colorado River is used up in agricultural fields. The US is required to deliver a given amount of water of a certain quality to Mexico each year. Back in the early 1990s, the water was too salty by the time it reached the border, so the US government installed a desalinization plant near the border in Yuma, which cost $280 million at the time. (It was closed down after nine months because of design flaws.) What will it cost us to clean up the water if the tailings pile ends up going this far downstream?

#535, p4

3) The DEIS concludes that the river is most likely to move to the south if its course changes, but this conclusion seems erroneous. It seems entirely possible that the river channel could migrate toward the pile in the next 200 to 1000 years. It also seems possible that it may migrate away from it. And it seems most likely, at least on the 1000-year time scale, that it will do both, because that is what rivers do when they are not constrained between canyon walls. There is evidence in the coarse cobbles in boreholes below the pile that the river was once there.

4) Time scales seem poorly considered in the DEIS. First of all, many of the toxins have half lives such that they will have seen little change 200 to 1000 years from now. And why do we disregard human and other life in a time frame as short as 200 years from now anyway?

But the DEIS doesn't even seem to fully consider the 200 to 1000 year time frame. What effect will global warming have on flood cycles? Will Lake Powell still be in place? Does the likelihood of dam failure upstream increase as these dams age? Are more dams likely to be built, and would this make dam failure even more likely? How many people might be living in the Moab Valley, and how likely is it that they will be drawing water from the river?

Certainly it would have been difficult for the Anasazi to imagine life as it is in the Moab Valley 1000 years after they lived here, and likewise we cannot fully imagine what life will be like here in 1000 years. But the point is, if we cannot imagine it, and we are mandated to manage the wastes for such a period, then we must do the safest thing: Move the pile out of the flood plain to a safer location. Don't cap it in place and then have to dig it up and move it later; do it right, now.

Mary Moran

Mary Moran
471 Loveridge Drive
Moab, UT 84532
marymoran@sisna.com

Document #536 LeMontre, Sue Individual

#536

Ms. Sue Lemontre
4815 E. Alder Dr.
San Diego, CA 92116-2325

2-13-05

Moab DEIS Comments:-

If this pile is as large as is publicized, how feasible would it be to bring a commercial mill to Moab in order to dispose of the pile? It could be cheaper to bring the mill to the mountain than to set up a pipeline to move the pile.

Apparently it has already cost 2 billion to move 22 other piles around the country. What would it cost to have a PORTABLE mill which could be moved to the site, such as a crematorium?

Sincerely,
Sue LeMontre

Document #537 Maia, Maia Individual

From: Maia Maia [Maia3@rain.org]
Sent: Wednesday, February 16, 2005 4:22 PM
To: moabcomments
Subject: Help move a toxic waste site away from the Colorado River

February 16, 2005

Moab DEIS Comments
U.S. Department of Energy Grand Junction
2597 B3/4 Road
Grand Junction, CO 81503

Attention Moab DEIS Comments:

RE: DOE/EIS - 0355D

What we need is a completely new Environmental Impact Statement to address the full reclamation of 12 million tons of uranium wastes that are, each and every
day, contaminating the Colorado River near Moab, Utah.

This new EIS should strongly reject the idea of capping the radioactive waste
on the bank of the Colorado River, and should instead recommend moving the waste
to one of two nearby Utah sites - Klondike or Crescent Junction.

IT IS SIMLY NOT ACCEPTABLE TO LEAVE 12 MILLION TONS OF MILL WASTE TO LEAK INTO
THE COLORADO RIVER WHERE IT IS ALMOST CERTAIN TO BE INUNDATED BY FLOODS, THUS CONTAMINATING THE WATER CITIZENS AND FARMERS REQUIRE FOR LIFE AND HEALTH.

Away from the Colorado River, the Klondike and Crescent Junction sites are in extremely stable, isolated areas that meet all the criteria for long-term disposal
of radioactive wastes.

EVERY SAVINGS FROM RESORTING TO CAPPING WILL BE OFFSET BY THE MUCH GREATER COSTS
OF CONTAINMENT- FAILURE AND CLEANUP.

Please consider this vital decision carefully. Thank you.

Sincerely,

Maia Maia
332 Ellwood Beach Dr Apt 9
Goleta, CA 93117-2702
USA
Maia3@rain.org

Document #539 Rivera, Madeline Individual

From: Madeline Rivera [madelinx@yahoo.com]
Sent: Wednesday, February 16, 2005 2:02 PM
To: moabcomments
Subject: Help move a toxic waste site away from the Colorado River

February 16, 2005

Moab DEIS Comments
U.S. Department of Energy Grand Junction
2597 B3/4 Road
Grand Junction, CO 81503

Attention Moab DEIS Comments:

RE: DOE/EIS - 0355D

As a citizen who relies on the Colorado River for drinking water, I am extremely concerned about an accident waiting to happen. I urge you to prepare a new Environmental Impact Statement (EIS) for the final reclamation of 12 million tons of uranium wastes that are contaminating the Colorado River near Moab, Utah.

The radioactive wastes are now located in an unlined pile within the floodplain of the river and are leaking approximately 12,000-15,000 gallons per day of intensely contaminated fluids into an underground aquifer that immediately discharges into the river. This site fails every test for an appropriate site, since it does not provide long-term isolation from the human and natural environment below ground that will endure without the need for ongoing maintenance.

I urge you to prepare a new EIS that (1) dismisses the alternative of capping the radioactive waste at its current site on the bank of the Colorado River, and (2) instead identifies a preferred alternative of moving the waste to one of two nearby Utah sites - Klondike or Crescent Junction. These sites are in extremely stable, isolated areas that meet all the criteria for long-term disposal of radioactive wastes.
Thank you for your consideration.

Sincerely,

Madeline Rivera
600 W Orange Grove Rd
Tucson, AZ 85704-5643
USA
madelinx@yahoo.com

Document #547 Angel, Bradley Green Action

From: Bradley Angel [bradley@greenaction.org]
Sent: Friday, February 18, 2005 11:09 AM
To: moabcomments
Cc: 'David L. Sakrison'; sarahmfields@earthlink.net
Subject: Request for short extension of Public Comment Perios on draft EIS for Moab Atlas project

On behalf of our constituents living in communities along the Colorado River south of Moab in California, Arizona and Nevada, we request a three week extension of the public comment period on the draft EIS. I have recently been notified that some of these constituents, including Native Nations along the Colorado River, may be interested in submitting comments. Please let me know if the comment period can be briefly extended. Thank you.

Document #549 Whiteskunk, Selwyn Ute Mountain Ute Tribe

UTE MOUNTAIN UTE TRIBE
P.O. Box 248
Towaoc, Colorado 81334-0248
(970) 565-3751

#549, p1

February 17, 2005

Donald R. Metzler
Moab Federal Project Director
U.S. Department of Energy
2597 B ¾ Road
Grand Junction, CO 81503

Dear Mr. Metzler:

The Ute Mountain Ute Tribe hereby submits the following comments regarding the Draft Environmental Impact Statement for the Remediation of the Moab Uranium Mill Tailings, Grand and San Juan Counties, Utah (DOE/EIS-0355D).

Beginning in the spring of 2002, the Ute Mountain Ute Tribe voiced its opposition to the International Uranium Corporation ("IUC") alternative, an alternative that proposes to transport the Atlas pile to the IUC facility located adjacent to the Ute Mountain Ute Tribal community of White Mesa, Utah. Via Resolution #2002-60 (copy enclosed), the Ute Mountain Ute Tribal Council opposed the construction of the slurry line to the IUC facility and the transportation of the materials to the operation. On February 14, 2005, the Tribal Council, through Resolution #2005-021 (copy enclosed), reaffirmed its opposition to the IUC alternative for remediation of the Moab Uranium Mill tailings. The February 14, 2005 Resolution of the Tribal Council opposes the IUC facility from receiving mill tailings, contaminated soils and cover materials regardless if the mode of transportation is by slurry line or truck. As you are aware, there has been, and continues to be, strong opposition to the IUC alternative from a majority of the community members of White Mesa who would be most impacted by that particular alternative.

In addition to the Ute Mountain Ute Tribe, the Southern Ute Indian Tribe and the Navajo Utah Commission of the Navajo Nation Council have both joined the chorus of voices opposing the IUC alternative. Copies of the letter from the Chairman of the Southern Ute Indian Tribe and Resolution NUCJUN-293-03, by the Navajo Utah Commission of the Navajo Nation Council, are enclosed.

When International Uranium Corporation first offered their unsolicited proposal to DOE, their plan noted how the city of Moab would benefit from the relocation of the

Chief Jack House, Last Traditional Chief 1886-1972

#549, p2

Atlas Pile. Their proposal neglected to discuss any impacts to the community of White Mesa, its air, its water, its people and most important, its future.

Fortunately, the Draft EIS paints a far clearer picture of the negative impacts associated with the IUC alternative. Throughout the drafting of this document nearly all of the Cooperating Agencies involved have been aware of the issues that should have removed the IUC alternative from consideration early in the process.

The negative impacts and features of the IUC proposal are very clear.

COST- The IUC alternative could cost upwards of $75 million dollars more than the Klondike Flats option, especially when considering the unknown Cultural Resource and Traditional Cultural Properties issues. The costs associated with these unknown Cultural Resource and Traditional Cultural Properties issues could dramatically increase the total cost of the IUC alternative. The Tribe believes the Draft EIS, by failing to account for these costs, is flawed. If these costs would have been included in the Draft EIS, the IUC alternative would be shown to be an even bigger fiscally irresponsibly alternative. The Tribe asserts that it is simply not reasonable to include for consideration an alternative that, if selected, would saddle U.S. taxpayers with an additional burden of at least $75 million dollars. (DOE EIS-0355-D, Summary S-9)

CULTURAL RESOURCES AND TRADITIONAL/TRIBAL CULTURAL PROPERTIES- One hundred and twenty one (121) prehistoric sites have already been identified as potentially being impacted by the IUC alternatives. Approximately one dozen Traditional Cultural Properties would also be impacted with little opportunity to mitigate those effects. Finally, the unknown; it is anticipated that many other sites will be discovered if construction were to occur increasing costs and delaying the project. (DOE EIS-0355-D, Summary S-9; Volume 1-pg. 3-56; pg. 3-155; pg. 3-157; pg. 3-175)

GEOLOGIC INSTABILITY- The potential of geologic instability creating a conduit for contaminants to reach the Navajo Aquifer, the sole source of culinary water for White Mesa and Bluff, Utah is an alarming proposition. In the event, however unlikely, that the Navajo Aquifer underlying the community of White Mesa were to become contaminated there is no alternative currently available to provide water to the community. Although this issue is considered to be a remote risk, it is a risk nonetheless; one with potentially serious and long term consequences. The Tribe strongly believes this risk is reason enough to remove the IUC alternative from consideration. (DOE EIS-0355-D, Summary S-12)

SOCIOECONOMIC ISSUES- Although jobs would be created during slurry line construction, including positions for Tribal members, the jobs would be few and short lived. Once operating, IUC operations would not provide many more jobs than are already available. Due to the fact that much of the financial information regarding the IUC proposal has been deemed confidential, as proprietary information, the DEIS does not paint a clear picture as to how many and what types of jobs would be available to

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White Mesa residents. Finally, the short term job benefits do not outweigh the negative environmental impacts.

HUMAN HEALTH IMPACTS – By Press Release dated April 15, 2003, the U.S. Department of Energy Grand Junction Office determined to eliminate the Green River alternative from consideration as an off-site alternative for collection of the Moab uranium mill tailings. The Department of Energy determined to delete the Green River alternative based on its proximity to populated areas, among other reasons. The IUC facility is a short distance from the White Mesa community and along a major thoroughfare used by Tribal members on a daily basis. Due to its proximity to the White Mesa community, the IUC alternative should also be removed from the list of potential sites.

ENVIRONMENTAL JUSTICE- On February 11, 1994, President Clinton signed Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, 59 Fed. Reg. 7629 (1994). The purpose of the Order is to focus federal attention on the environment and human health conditions in minority communities and low-income communities with the goal of achieving environmental justice. As the Department of Energy correctly points out in the Draft EIS the White Mesa Ute Reservation is adjacent to the IUC site and the area south of the IUC site (including the White Mesa Ute Reservation) has a minority population and poverty rate, both greater than 50%. However, the Tribe believes the Draft EIS fails to adequately address environmental justice issues of the White Mesa community.

Section 1-1 of Executive Order 12898 requires that each Federal Agency make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority and low-income populations. While the Draft EIS adequately identifies the disproportionate adverse impacts, it fails to appropriately address these same adverse impacts. The Draft EIS identifies the "[d]isproportionate adverse impacts to minority and low-income populations would occur under this [IUC] alterative as a result of unavoidable adverse impacts on potential traditional cultural properties located on and near the White Mesa Mill site, the proposed White Mesa Mill pipeline route, White Mesa Mill borrow area, and Blanding borrow area." DOE EIS-0335D, 4.4.18. These disproportionately adverse impacts include at least eleven potential traditional cultural properties that would be unavoidably and adversely affected and the extremely high likelihood that additional traditional cultural properties would be located. The Tribe submits the appropriate manner to address these disproportionately adverse impacts to minority and low-income populations is to remove the IUC alternative from consideration. To do otherwise, fails to comply with the intent of Environmental Justice and dismisses the importance of traditional cultural properties to the Ute people, as well as the Navajo and Hopi cultures.

In addition, the U.S. Department of Energy anticipates dealing with the impacts to these Traditional Cultural Properties and an additional yet unknown number of additional

#549, p4

sites at some later date. Dealing with the impacts at an unknown later date is inadequate and contrary to the goal of the Draft EIS, which is to find a preferred alternative.

As a cooperating agency the Ute Mountain Ute Tribe has discussed the uncertainties of all of the alternatives including river migration, duration of workers exposure to radiation, congressional appropriations and cultural resource issues. It can be safely said that the IUC alternative has the most unanswered questions. Based on these uncertainties the Ute Mountain Ute Tribe respectfully requests that the IUC option is removed from further consideration.

Although the U.S. Department of Energy Grand Junction Office has worked closely with the Tribe and other Cooperating Agencies we remain skeptical of the decision making process in Washington, D.C. We encourage the local U.S. Department of Energy staff who have professionally steered the Draft EIS program through the NEPA process to persuade upper management at the Department of Energy's headquarters to utilize sound engineering, rational science, fiscal responsibility, and recognition of the significant opposition of the Ute Mountain Ute Tribe to remove the IUC alternative from consideration.

Sincerely,

Selwyn Whiteskunk, Chairman
Ute Mountain Ute Tribal Council

#549, p5

RESOLUTION NO. 2002-60
UTE MOUNTAIN UTE TRIBAL COUNCIL
REFERENCE: INTERNATIONAL URANIUM CORP./WHITE MESA URANIUM MILL SLURRY LINE PROPOSAL

WHEREAS, the Constitution and By-laws of the Ute Mountain Ute Tribe, approved June 6, 1940 and subsequently amended, provides in Article III that the governing body of the Ute Mountain Ute Tribe is the Ute Mountain Ute Tribal Council and sets forth in Article V the powers of the Tribal Council exercised in this Resolution; and

WHEREAS, the Ute Mountain Ute Tribal Council is responsible for programs that will improve the economic, social, and general overall welfare of the members of the Ute Mountain Ute Tribe; and

WHEREAS, the Ute Mountain Ute Tribe has an opportunity to declare a position regarding International Uranium Corporation's proposal to construct a slurry line from the defunct Atlas Mill/Moab, Utah to White Mesa Mill near the tribal community of White Mesa, Utah in order to deliver mill tailings, contaminated soils and cover material to the White Mesa Mill for processing and/or permanent storage; and

THEREFORE BE IT RESOLVED, that the Ute Mountain Ute Tribal Council hereby opposes International Uranium Corporation's proposal to construct the slurry line and to receive the mill tailings and directs the United States Department of Energy to consider other alternatives for remediation of the Atlas Mill tailings that do not impact the tribal community of White Mesa, Utah; and

BE IT FINALLY RESOLVED, that the Chairman of the Ute Mountain Ute Tribal Council is authorized to sign the Resolution and is further authorized to take such action as may be necessary to carry out the intent of this Resolution.

The foregoing Resolution was duly adopted this 13th day of March 2002.

Judy Knight-Frank, Chairman
Ute Mountain Ute Tribal Council

Mariea Rivera, Recording Secretary
Ute Mountain Ute Tribal Council

#549, p6

DATE: FEBRUARY 14, 2005 **RESOLUTION NO. 2005-021**

RESOLUTION
UTE MOUNTAIN UTE TRIBAL COUNCIL
REFERENCE: REAFFIRMING THE UTE MOUNTAIN UTE TRIBE'S OPPOSITION TO THE INTERNATIONAL URANIUM CORPORATION ALTERNATIVE FOR REMEDIATION OF ATLAS MILL SITE/MOAB URANIUM MILL TAILINGS

WHEREAS, the Constitution and By-Laws of the Ute Mountain Ute Tribe, approved June 6, 1940 and subsequently amended, provide in Article III that the governing body of the Ute Mountain Ute Tribe is the Ute Mountain Ute Tribal Council and sets forth in Article V the powers of the Tribal Council exercised in this Resolution; and

WHEREAS, the Ute Mountain Ute Tribal Council is responsible for programs that will improve the economic, social, and general overall health and welfare of the members of the Ute Mountain Ute Tribe; and

WHEREAS, the International Uranium Corporation operates the White Mesa Mill near the tribal community of White Mesa, Utah; and

WHEREAS, the Ute Mountain Ute Tribe has an opportunity to declare its position regarding the International Uranium Corporation alternative for the remediation of the now defunct Atlas Mill site/Moab uranium mill tailings; and

WHERAS, on March 13, 2002, the Ute Mountain Ute Tribal Council, by Resolution No. 2002-60, opposed International Uranium Corporation's proposal to receive mill tailings from the now defunct Atlas Mill site/Moab uranium mill tailings. A copy of Ute Mountain Ute Tribal Council Resolution No. 2002-60 it attached.

NOW, THEREFORE BE IT RESOLVED, that the Ute Mountain Ute Tribal Council hereby reaffirms its opposition to the International Uranium Corporation receiving mill tailings, contaminated soils and cover material from the defunct Atlas Mill site/Moab uranium mill tailings; and

BE IT FURTHER RESOLVED, that the Ute Mountain Ute Tribal Council directs the United States Department of Energy to consider other alternatives for remediation of the Atlas Mill site/Moab uranium mill tailings that do not impact the tribal community of White Mesa, Utah; and

BE IT FINALLY RESOLVED, that the Chairman of the Ute Mountain Ute Tribal Council is authorized to sign this Resolution and is further authorized to take such action as may be necessary to carry out the intent of this Resolution.

#549, p7

This foregoing Resolution was duly adopted this 14th day of February, 2005.

Selwyn Whiteskunk, Chairman
Ute Mountain Ute Tribal Council

CERTIFICATION

This is to certify that there was a quorum of 5 Tribal Council members present at the official meeting of the Ute Mountain Ute Tribal Council held on February 14, 2005, that 4 voted for this Resolution, that 0 opposed, and 1 abstained, and this Resolution was, therefore, duly adopted.

Cheryl Ward, Recording Secretary
Ute Mountain Ute Tribal Council

Page 2 of 2
Resolution Number 2005-021

#549, p 8

RESOLUTION NO. 2002-60
UTE MOUNTAIN UTE TRIBAL COUNCIL
REFERENCE: INTERNATIONAL URANIUM CORP./WHITE MESA URANIUM MILL SLURRY LINE PROPOSAL

WHEREAS, the Constitution and By-laws of the Ute Mountain Ute Tribe, approved June 6, 1940 and subsequently amended, provides in Article III that the governing body of the Ute Mountain Ute Tribe is the Ute Mountain Ute Tribal Council and sets forth in Article V the powers of the Tribal Council exercised in this Resolution; and

WHEREAS, the Ute Mountain Ute Tribal Council is responsible for programs that will improve the economic, social, and general overall welfare of the members of the Ute Mountain Ute Tribe; and

WHEREAS, the Ute Mountain Ute Tribe has an opportunity to declare a position regarding International Uranium Corporation's proposal to construct a slurry line from the defunct Atlas Mill/Moab, Utah to White Mesa Mill near the tribal community of White Mesa, Utah in order to deliver mill tailings, contaminated soils and cover material to the White Mesa Mill for processing and/or permanent storage; and

THEREFORE BE IT RESOLVED, that the Ute Mountain Ute Tribal Council hereby opposes International Uranium Corporation's proposal to construct the slurry line and to receive the mill tailings and directs the United States Department of Energy to consider other alternatives for remediation of the Atlas Mill tailings that do not impact the tribal community of White Mesa, Utah; and

BE IT FINALLY RESOLVED, that the Chairman of the Ute Mountain Ute Tribal Council is authorized to sign the Resolution and is further authorized to take such action as may be necessary to carry out the intent of this Resolution.

The foregoing Resolution was duly adopted this 13th day of March 2002.

Judy Knight-Frank, Chairman
Ute Mountain Ute Tribal Council

Mariea Rivera, Recording Secretary
Ute Mountain Ute Tribal Council

JAN-09-2004 FRI 04:15 PM SO UTE INDIAN TRIBE FAX NO. 9705630396 P. 02/02

#549, p9

SOUTHERN UTE INDIAN TRIBAL COUNCIL

POST OFFICE BOX 737
IGNACIO, COLORADO 81137
970-563-0100
FAX 970-563-0396

January 9, 2004

Mr. Harold Cuthair, Vice-Chairman
Ute Mountain Ute Tribal Council
Towaoc, Colorado 81334

Dear Vice-Chairman Cuthair:

This letter is intended to express the support of the Southern Ute Indian Tribe for the Ute Mountain Ute Tribe's stated position opposing the proposal to construct a slurry line from Moab, Utah to the White Mesa Mill near the Ute Mountain Ute White Mesa Community. The Southern Ute Indian Tribal Council understands your concern for your tribal members and the environment if a slurry line is built to transport mill tailings and contaminated soil to the White Mesa Mill for processing or storage, and we share your concern.

Please convey to the United States Department of Energy as well and other decision makers, our opposition to the proposal and our concurrence with your request that alternatives to this proposal be considered.

Sincerely,

Howard D. Richards, Sr.
Chairman
Southern Ute Indian Tribe

The Legislative Branch
The Navajo Nation

#549, p10

Lawrence Morgan
Speaker of the Navajo Nation Council

**RESOLUTION OF THE
NAVAJO UTAH COMMISSION
OF THE NAVAJO NATION COUNCIL**

NUCJUN-293-03

OPPOSING THE TRANSPORTATION, STABILIZATION AND STORAGE OF URANIUM MILL TAILINGS AT THE WHITE MESA MILL OUTSIDE BLANDING, UTAH, NEAR THE UTE RESERVATION AND REQUESTING THE U.S. DEPARTMENT OF ENERGY TO KEEP RECLAMATION ACTIVITIES IN VICINITY OF ORIGINAL MILLING SITE IN MOAB, UTAH.

Whereas:

1. The Navajo Utah Commission was established by the Intergovernmental Relations Committee of the Navajo Nation Council by Resolution No. IGRJN-134-92 to develop and maintain efficient governmental services to the Navajo People residing on the "Utah Strip" of the Navajo Nation; and

2. The uranium industry has left a devastating legacy with the Navajo people with lingering illnesses and lost of life; the Navajo people are distrustful and suspicious with the additional suffering inflicted by a slow restitution process; and

3. The Navajo people are rightfully leery of expanding the White Mesa Mill operations by 270 acres and fear accommodation of International Uranium Corporation (IUC)'s relentless quest for importation of other hazardous, radioactive waste material from across the country; and

4. The Navajo people have seen disappointment in government projects that accorded minimal respect to traditional beliefs and cultural practices and are anticipating, if any, token translation and presentation of highly technical information to predominately Navajo and Ute speakers regarding the proposed White Mesa Mill expansion; and

5. As citizens of the State of Utah, the Navajo people do not support the further desecration of scenery and environment with construction of an unsightly slurry pipeline of considerable distance.

#549, p11

Resolution NUCMAY-293-03
Page 02 of Page 02

NOW THEREFORE BE IT RESOLVED:

1. Opposing the transportation, stabilization and storage of Uranium Mill Tailings at the White Mesa Mill outside Blanding, Utah, near the Ute Reservation and requesting the U.S. Department of Energy to keep reclamation activities in vicinity of original milling site in Moab, Utah.

CERTIFICATION

We, hereby certify that the foregoing resolution was duly considered by Navajo Utah Commission at a duly called meeting in Navajo Mountain, Utah, at which a quorum was present and the same was passed by a vote of 5 in favor, 0 opposed, and 0 abstention, this **11th** day of **June, 2003**.

Russell Gould, Chairperson
NAVAJO UTAH COMMISSION

MOTION: Francis Redhouse
SECOND: Willie Grayeyes

Document #553 Underwood, Dennis Metropolitan Water District of Southern California

MWD
METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

Executive Office

February 17, 2005

FEDERAL EXPRESS

Mr. Don Metzler
Moab Federal Project Director
U.S. Department of Energy
2597 B 3/4 Road
Grand Junction, CO 81503

Dear Mr. Metzler:

Draft Environmental Impact Statement for Remediation of the Moab Uranium Mill Tailings

The Metropolitan Water District of Southern California (Metropolitan) has received a copy of the Draft Environmental Impact Statement (Draft EIS) for Remediation of the Moab Uranium Mill Tailings, Grand and San Juan Counties, Utah (Project). The U.S. Department of Energy (DOE) is proposing to clean up surface contamination and implement a groundwater compliance strategy to address contamination resulting from historical uranium-ore processing at the Moab Uranium Mill Tailings Site (Moab site), Grand County, Utah.

Metropolitan strongly believes that moving the Moab pile off-site is the only reliable and permanent alternative sufficient to protect the Colorado River from further contamination by radioactivity and inorganics. Metropolitan is the primary wholesale provider of supplemental water to Southern California and relies on the Colorado River to supply drinking water to over 18 million people in Southern California within our 5,200 square-mile service area. Filling our Colorado River Aqueduct requires pumping 1,250,000 acre-feet a year of Colorado River water. Metropolitan is providing the following comments on this Draft EIS as a potentially affected public agency.

1. Off-site Disposal is Only Reliable Option for Permanent Protection of Colorado River

Metropolitan strongly supports the off-site disposal option, as this is the only option which offers long-term, permanent protection to the quality of water received by downstream Colorado River users. Metropolitan agrees with the assessment reached by the State of Utah in their December 29, 2004 letter to you that states that any remediation other than an off-site option is unacceptable.

With both the no action and the on-site alternatives, contaminated seepage will continue to leak from the tailings pile and into the Colorado River. Although the volume of seepage may be reduced with the on-site alternative, Metropolitan finds any seepage into the Colorado River unacceptable. Metropolitan is also concerned about adverse impacts to the Colorado

700 N. Alameda Street, Los Angeles, California 90012 • Mailing Address: Box 54153, Los Angeles, California 90054-0153 • Telephone (213) 217-6000

River from both the no action alternative and the on-site alternative as natural subsidence, river migration, flooding, incision, and disposal cell or tailings pile failure occur. Additionally, Metropolitan is disappointed there is insufficient analysis to quantify the increase in uranium concentrations to the Colorado River after a catastrophic flood, and what impacts this would have on downstream users. Metropolitan requests that this information be provided in the final EIS.

An example illustrating Metropolitan's concerns can be drawn from DOE studies evaluating current and future levels of contamination emanating from the waste pile. The Site Observational Work Plan for the Moab site (SOWP) characterizes the tailings pore water currently migrating from the bottom of the tailings pile as a composition of approximately 1,100 mg/L ammonia, 24,600 mg/L TDS and 7.87 mg/L uranium. The SOWP predicts contamination levels will worsen as water infiltrates into the upper portion of the tailings pile and salt deposits are dissolved. Ammonia concentrations are anticipated to increase to approximately 18,000 mg/L and TDS to approximately 213,758 mg/L (SOWP 6-7 item 6). Therefore, concentrations of ammonia and total dissolved solids (TDS) will roughly increase by an order of magnitude in tailings pore water with both the no action and the on-site alternative. Since previous work has confirmed that "ground water discharge from the Moab site has caused localized degradation of surface water quality (Draft EIS, Page 3-30, Paragraph 6",) these elevated levels of contamination will enter into the Colorado River. The off-site disposal alternative would eliminate this contamination of the Colorado River, as the source of the increasing concentrations of ammonia, TDS, and uranium would be moved along with the tailings.

For the no-action alternative, the pore water impacted with elevated concentrations resulting from dissolution of the salts is expected to enter the groundwater after 168 years from present and be completely depleted after 217 years. After 217 years, seepage of the pore fluids is anticipated to continue with a concentration of 1,100 mg/L ammonia indefinitely. Unfortunately, concentrations are not provided for TDS and uranium in the SOWP. For the on-site disposal alternative, the pore water impacted with elevated concentrations resulting from dissolution of the salts is expected to enter the groundwater at 1,094 years from the present and be completely depleted at 1,536 years. After 1,536 years, seepage of the pore fluids is anticipated to continue at 1,100 mg/L ammonia indefinitely. Again, concentrations are not provided for TDS and uranium in the SOWP. If ammonia contamination from pore water seepage is an indication of the trends expected for TDS and uranium, such contamination must be prevented from reaching the River. Future reliance on the Colorado River as a source of drinking water will only increase further, given the population growth projected for Southern California and this irreplaceable resource must receive the highest level of protection possible. Therefore, the off-site disposal alternative is the only option that reliably provides such permanent protection of the Colorado River.

2. Continued Seepage of Uranium from Pile Counter to Public Health Protection

As described in Section 1, if the waste pile is left in place, uranium will continue to leak from the site, and may significantly increase. Metropolitan is extremely concerned with any action that could possibly increase uranium levels in our source waters, as the Public Health Goal for uranium in California is 0.5 pCi/L, the Maximum Contaminant Level (MCL) is 20 pCi/L in California, and the federal MCL is 30 µg/L. An approximate conversion from µg/L to pCi/L is that 1 µg/L is equivalent to 0.67 pCi/L. Using this conversion factor, the maximum groundwater concentration of uranium found at the Moab site is reported at 23 mg/L, which is over 750 times higher than the federal MCL.

Further, Metropolitan believes that it is important to safeguard the public's confidence in the reliability of the Colorado River as a drinking water source. Public perception of the negative health impacts from radioactivity must be considered when selecting a remediation alternative. Off-site disposal would ameliorate such concerns.

3. Salinity from Moab Pile Violates Colorado River Salinity Control Policy

A rise in salinity impairs the usability of any source of water. Increased concentrations of TDS in Colorado River water is of great concern to Metropolitan as it can affect plumbing systems and appliances through the deposit of dissolved salts, industrial processes that depend on lower salinity water, local recycling projects, and groundwater recharge, among numerous other activities. Metropolitan delivers water to our member agencies that does not exceed 500 mg/L TDS, which meets the secondary drinking water standard for California.

Therefore, the alternative selected should at least meet all Colorado River Basin Salinity Control Forum (Forum) policies. The Forum was created by the seven Colorado River Basin states. Forum policies are published in the "2002 Review, Water Quality Standards for Salinity, Colorado River System. " This report is prepared and submitted in response to Section 303(c) of the Clean Water Act and includes the water quality standards numeric criteria and the Plan of Implementation developed and adopted by the Forum. The Plan of Implementation includes implementation of Forum adopted policies. Each of the seven Colorado River Basin states includes the report as part of its own water quality standards, and through procedures established by each state, considers the report, potentially adopts it, and then submits the report to the appropriate Regional office of the U.S. Environmental Protection Agency (EPA) for approval. The California State Water Resources Control Board adopted the Review on April 30, 2003, and the EPA approved the Review on July 10, 2003. The "Policy for Implementation of Colorado River Salinity Standards Through the NPDES Permit Program for Intercepted Groundwater" (Enclosure A) states that the discharge of intercepted groundwater needs to be evaluated in a manner consistent with the overall

objective of "no-salt" return whenever practical. The no-salt discharge requirement may be waived at the option of the permitting authority in those cases in which the discharge salt load reaching the main stem of the Colorado River is less than one ton per day or 350 tons per year, whichever is less.

As cited earlier, the tailings pore water currently migrating from the bottom of the tailings pile has a composition of approximately 24,600 mg/L TDS and a flow rate of 20 gpm. This data indicates that the TDS loading to the Colorado River under the no action alternative is 2.9 tons/day, which clearly exceeds the Colorado River Basin Salinity Control Forum policy on intercepted groundwater. The SOWP indicates that the seepage rate will decline from 20 gpm, at present, to 8 gpm after approximately 20 years. Even so, the TDS loading to the Colorado River will remain above the threshold of one ton/day for the next 20 years under the no action alternative.

For the on-site alternative, the flow rate would decrease to 0.8 gpm, resulting in 0.12 tons/day being discharged to the Colorado River. Although this is less than one ton/day, this loading will increase to greater than one ton/day at 1,094 years from the present, when the pore water impacted by dissolution of salts in the pile enters the groundwater. Metropolitan offers this information to further illustrate that the off-site disposal alternative should be implemented.

4. Draft EIS Heightens Need for Off-Site Disposal

Given the drawbacks illustrated in the draft EIS for the no action and on-site alternatives, it is unclear how the DOE can choose any other alternative but off-site disposal. Metropolitan offers the following statements from the Draft EIS to further substantiate our concerns and underscore the need for off-site disposal of the Moab waste pile:

- "Under either the on-site disposal alternative or the No Action alternative, the combination of the processes of subsidence and incision would slowly affect the tailings pile by lowering it in relation to the Colorado River. This impact would not occur under the off-site disposal alternative because the pile would be removed." (Executive Summary, *Geology and Soils*, Page S-12)

- "Under the on-site disposal alternative, the tailings pile would be a continuing source of contamination that would maintain contaminant concentrations at levels above background concentrations in the groundwater and, therefore, potentially require the application of supplemental standards (institutional standards) in perpetuity to protect human health." (Executive Summary, Ground Water, Page S-13)

- "…[u]nder the No Action alternative, groundwater beneath the Moab site would remain contaminated, would not be protective of human health, and would continue in perpetuity to discharge contamination to the surface water at concentrations that would not be protective of aquatic species. Modeling results indicate that under the on-site disposal alternative, contaminants from the potential salt layer would reach groundwater in approximately 1,100 years and would affect ground water and surface water for approximately 440 years. Because ground water treatment would have been discontinued after an estimated 80 years, surface water concentrations could revert to nonprotective levels." (Executive Summary, Ground Water, Pages S-13 - Page S-14)

- "In addition to natural subsidence described in the discussion of ground water impacts, a Colorado River 100- or 500- year flood could release additional contamination to groundwater and surface water under the on-site disposal or No Action alternatives." (Executive Summary, Surface Water, Page S-14)

- "However, the possibility of a catastrophic flood cannot be eliminated because part of the Moab site tailings impoundment is located within the 100-year floodplain of the Colorado River and within the floodplain of the PMF of both the Colorado River and Moab Wash." (Executive Summary, Table S-1. Consequences of Uncertainty, Item 10. Catastrophic Floods, Page S-41)

- "If river migration and encroachment were to occur to a great degree, significantly lessening the transport distance from the disposal cell to the river, surface water ammonia concentrations and concentrations of other contaminants of concern could revert to nonprotective levels, and additional engineered remedies or pile relocation could be necessary to meet UMTRCA requirements, potentially increasing program costs by tens to hundreds of millions of dollars." (Executive Summary, Table S-1. Consequences of Uncertainty, Item 9. Catastrophic Floods, Page S-41)

- "However, under the on-site disposal and No Action alternatives, natural basin subsidence would result in permanent tailings contact with the ground water in 7,000 to 10,000 years, at which times surface water concentrations would temporarily revert to levels that are not protective of aquatic species in the Colorado River." (Draft EIS, Page 2-119)

- "Under the on-site remediation alternative and No Action alternative, a disposal cell or tailings pile failure could pose a risk under the residential scenario and could result in adverse impacts to aquatic receptors from uranium and ammonia concentrations in the Colorado River. The risk would be much lower for the off-site disposal locations

because the sites are not located near a river, do not have historical seismic activity, are not prone to subsidence attributed to salt dissolution below the alluvial basin, and are located away from population centers and sensitive habitats." (Draft EIS, Disposal Cell or Tailings Pile Failure, Page 2-137)

5. Clean-up Objective for Groundwater Should Protect Public Health as well as Aquatic Life

Metropolitan diverts water from the Colorado River near Parker Dam to supply supplemental drinking water for over 18 million people in Southern California, and protection of water quality is of key importance. Since previous work has confirmed that "groundwater discharge from the Moab site has caused localized degradation of surface water quality (Draft EIS, Page 3-30, Paragraph 6)" and "discharge of contaminated ground water has resulted in elevated concentrations of ammonia and other site-related constituents in the Colorado River adjacent to the site (Executive Summary, Page S-10, Paragraph 2)", Metropolitan requests that all constituents found at elevated levels in groundwater be targeted for removal, in order to prevent those constituents from further degrading water quality in the Colorado River. Our review of the groundwater data shows that the maximum groundwater concentrations at the site exceed U.S. Environmental Protection Agency (USEPA) drinking water standards and/or California Title 22 drinking water standards for arsenic, cadmium, fluoride, mercury, nitrate, selenium, thallium, radium 226, radium 228, gross alpha and uranium. Therefore, all of these constituents should be targeted for removal from the groundwater and should have remediation goals.

It is unknown why uranium is not specified like ammonia as a target for treatment, especially when the document itself states " The constituents with concentrations that are most consistently elevated in samples from the Colorado River are ammonia and uranium." (Draft EIS, Page 3-30, Paragraph 7)

In addition, it is premature to focus solely on ammonia as a constituent of concern, as changing the oxidation-reduction potential content in the pile may also change the chemical composition of the pore fluid of the tailings pile and subsequently the potential impacts to the Colorado River. The oxidation-reduction potential of the tailings does not appear to have been adequately characterized, as indicators of both oxidizing and reducing environments in the tailings pile have been presented in the SOWP. For example, the SOWP states "Dissolved oxygen concentrations in the pore water samples range from 0.82 to 6.7 mg/L with a mean of 2.1 mg/L, suggesting relatively oxidized conditions. In a few samples, dissolved Fe and Mn concentrations of up to 211 mg/L and 64.8 mg/L, respectively, suggest reducing conditions." (SOWP, Page 5-61)

The data presented pertaining to the oxidized state of the tailings is inconclusive, and therefore the potential for metals to leach into the subsurface through the pore fluids of the tailings as the tailings undergo oxidation or reduction has not been adequately assessed. Metropolitan requests that this issue be adequately addressed in the Final EIS.

6. Effectiveness of Proposed Remediation Scheme is Unknown and Unpredictable

Metropolitan is concerned with the effectiveness and impacts of the groundwater remediation system on the Colorado River, as insufficient information was provided on the selection and design of the extraction and treatment system. Also, Metropolitan disagrees with the presumption that the proposed groundwater remediation designed to achieve an ammonia groundwater concentration of 3 mg/L "…would also clean up other contaminants to their appropriate and respective clean-up levels." (Executive Summary, Table S-1. Consequences of Uncertainty, Item 15. Other Contaminants of Concern, Page S-43)

This assumption is erroneous, as removal efficiencies will vary, depending on the target contaminant and the remediation technology selected. In fact, "…DOE acknowledges that there is uncertainty in this assumption due to factors such as differences in solute transport and sorption mechanics." (Executive Summary, Table S-1. Consequences of Uncertainty, Item 15. Other Contaminants of Concern, Page S-43)

To address these uncertainties, the appropriate treatment technologies should be selected at the onset to target ammonia as well as all other identified contaminants of concern. The appropriate treatment technologies selected for the on-site alternative should be identified in the Final EIS.

7. Groundwater Remediation Options Need to be Carefully Weighed

Metropolitan also has the following specific concerns related to the groundwater remediation options:

- If water is returned to the Colorado River, the water quality discharged to the Colorado River should be equal to or better than upstream ambient concentrations in the Colorado River.

- If water is returned to the Colorado River, the Colorado River Basin Salinity Control Forum's "Policy for Implementation of Colorado River Salinity Standards Through the NPDES Permit Program" should be met (Enclosure B).

THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

Mr. Don Metzler
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February 17, 2005

- Metropolitan opposes the clean water application, as this approach relies on dilution as a solution for elevated concentration rather than removing contamination before it enters the Colorado River. The clean water application may address reducing the concentration of contaminants in the discharge, but it does not reduce the total load of contaminants to the Colorado River.

- Metropolitan is concerned with placing large, solar evaporation ponds in the floodplain area as these ponds are vulnerable to flooding events, which may then transport contamination concentrated in the ponded water to the Colorado River.

- Metropolitan is concerned with on-site drying of tailings, as this would have the "…potential for tailings to be transported off-site and into the Colorado River and Moab Wash" (Draft EIS, Page 4-12, Paragraph 4) if a flood with greater than a 25-year return interval should occur."

- Metropolitan is concerned that a pump-and-treat system may cause added contamination to the Colorado River. According to the SOWP, "freshwater in the unconfined alluvial system at the Moab site is underlain by a brine zone. Pumping from the shallow fresher water system (during pump-and-treat remediation) may cause the salt-water to rise to a higher elevation and intrude the fresher water. Salt-water intrusion would result in degradation of the overlying fresher water, which could adversely affect the tamarisk plant communities that are providing beneficial phytoremediation at the site. Besides causing saltwater intrusion into the shallow ground water, rising salt water may bring higher ammonia concentrations to the surface and cause added contamination to the river." Therefore, impacts from groundwater pumping should be addressed in the final EIS.

We appreciate the opportunity to provide input to your planning process and we look forward to receiving the Final EIS on this project. If we can be of further assistance, please contact Ms. Leslie Palencia of the Water Quality Section at (909) 392-5431 or Ms. Laura Simonek, Manager, Environmental Planning Team at (213) 217-6242.

Very truly yours,

Dennis Underwood
Vice President, Colorado River Resources

LSP/LIM/rdl
(Public Folders/EPU/Letters/03-FEB-05A.doc –Don Metzler)
Enclosures: (2)

POLICY FOR IMPLEMENTATION OF COLORADO RIVER SALINITY STANDARDS THROUGH THE NPDES PERMIT PROGRAM FOR INTERCEPTED GROUND WATER

Adopted by
The Colorado River Basin Salinity Control Forum

October 20, 1982

The States of the Colorado River Basin in 1977 agreed to the "Policy for Implementation of Colorado River Salinity Standards through the NPDES Permit Program" with the objective for industrial discharge being "no-salt return" whenever practicable. That policy required the submittal of information by the applicant on alternatives, water rights, quantity, quality, and costs to eliminate or minimize the salt discharge. The information is for use by the NPDES permit-issuing agency in evaluating the practicability of achieving "no-salt" discharge.

There are mines and wells in the Basin which discharge intercepted ground waters. The factors involved in those situations differ somewhat from those encountered in other industrial discharges. Continued development will undoubtedly result in additional instances in which permit conditions must deal with intercepted ground water.

The discharge of [1]intercepted ground water needs to be evaluated in a manner consistent with the overall objective of "no-salt return" whenever practical. The following provides more detailed guidance for those situations where ground waters are intercepted with resultant changes in ground-water flow regime.

I. The "no-salt" discharge requirement may be waived at the option of the permitting authority in those cases where the discharged salt load reaching the main stem of the Colorado River is less than one ton per day or 350 tons per year whichever is less. Evaluation will be made on a case-by-case basis.

II. Consideration should be given to the possibility that the ground water, if not intercepted, normally would reach the Colorado River System in a reasonable time frame. An industry desiring such consideration must provide detailed information including a description of the topography, geology, and hydrology. Such information must include direction and rate of ground-water flow; chemical quality and quantity of ground water; and the location, quality, and quantity of surface streams and springs that might be affected. If the information adequately demonstrates that the ground water to be intercepted normally would reach the river system in a reasonable time frame and would contain approximately the same or greater

[1]The term "intercepted ground water" means all ground water encountered during mining or other industrial operations.

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salt load than if intercepted, and if no significant localized problems would be created, then the permitting agency may waive the "no-salt" discharge requirement.

III. In those situations where the discharge does not meet the criteria in I or II above, the applicant will be required to submit the following information for consideration:

A. Description of the topography, geology, and hydrology. Such information must include the location of the development, direction and rate of ground-water flow, chemical quality and quantity of ground water, and relevant data on surface streams and springs that are or might be affected. This information should be provided for the conditions with and without the project.

B. Alternative plans that could substantially reduce or eliminate salt discharge. Alternative plans must include:

1. Description of water rights, including beneficial uses, diversions, and consumptive use quantities.

2. Description of alternative water supplies, including provisions for water reuse, if any.

3. Description of quantity and quality of proposed discharge.

4. Description of how salts removed from discharges shall be disposed of to prevent their entering surface waters or ground-water aquifers.

5. Technical feasibility of the alternatives.

6. Total construction, operation, and maintenance costs; and costs in dollars per ton of salt removed from the discharge.

7. Closure plans to ensure termination of any proposed discharge at the end of the economic life of the project.

8. A statement as to the one alternative plan for reduction of salt discharge that the applicant recommends be adopted, including an evaluation of the technical, economic, and legal Practicability of achieving no discharge of salt.

9. Such information as the permitting authority may deem necessary.

IV. In determining whether a "no-salt" discharge is Practicable, the Permit-issuing authority shall consider, but not be limited to, the water rights and the technical, economic, and legal practicability of achieving no discharge of salt.

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V. Where "no-salt" discharge is determined not to be Practicable the permitting authority shall, in determining permit conditions, consider:

A. The impact of the total proposed salt discharge of each alternative on the lower main stem in terms of both tons per year and concentration.

B. Costs per ton of salt removed from the discharge for each plan alternative.

C. The compatibility of state water laws with each alternative.

D. Capability of minimizing salinity discharge.

E. The localized impact of the discharge.

F. Minimization of salt discharges and the preservation of fresh water by using intercepted ground water for industrial processes, dust control, etc. whenever it is economically feasible and environmentally sound.

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POLICY FOR IMPLEMENTATION OF COLORADO RIVER SALINITY STANDARDS THROUGH THE NPDES PERMIT PROGRAM

Adopted by
The Colorado River Basin Salinity Control Forum

February 28, 1977
Revised October 30, 2002

In November 1976, the United States Environmental Protection Agency Regional Administrators notified each of the seven Colorado River Basin states of the approval of the water quality standards for salinity for the Colorado River System as contained in the document entitled "Proposed Water Quality Standards for Salinity Including Numeric Criteria and Plan of Implementation for Salinity Control, Colorado River System, June 1975, and the supplement dated August 25, 1975. The salinity standards including numeric criteria and a plan of implementation provide for a flow weighted average annual numeric criteria for three stations in the lower mainstem of the Colorado River: below Hoover Dam, below Parker Dam, and at Imperial Dam.

In 1977, the states of the Colorado River Basin adopted the "Policy for Implementation of Colorado River Salinity Standards through the NPDES Permit Program." The Plan of Implementation is comprised of a number of Federal and non-Federal projects and measures to maintain the flow-weighted average annual salinity in the Lower Colorado River at or below numeric criteria at the three stations as the Upper and Lower Basin states continue to develop their compact-apportioned waters. One of the components of the Plan consists of the placing of effluent limitations, through the National Pollutant Discharge Elimination System (NPDES) permit program, on industrial and municipal discharges.

NPDES Policy for Municipal and Industrial Discharges of Salinity in the Colorado River

The purpose of this policy is to provide more detailed guidance in the application of salinity standards developed pursuant to Section 303 and through the NPDES permitting authority in the regulation of municipal and industrial sources. (See Section 402 of the Federal Water Pollution Control Act.) The objective of the policy, as provided in Sections I.A. and I.B., is to achieve "no salt return" whenever practicable for industrial discharges and an incremental increase in salinity over the supply water for municipal discharges. This policy is applicable to discharges that would have an impact, either direct or indirect on the lower mainstem of the Colorado River System. The lower mainstem is defined as that portion of the River from Hoover Dam to Imperial Dam.

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NPDES Policies Separately Adopted By The Forum

The Forum developed a separate and specific policy for the use of brackish and/or saline waters for industrial purposes on September 11, 1980. The Forum addressed the issue of intercepted ground water and adopted a specific policy dealing with that type of discharge on October 20, 1982. On October 28, 1988, the Forum adopted a specific policy addressing the water use and discharge associated with fish hatcheries. Each of these separately adopted policies is attached hereto.

NPDES Policies For Specified Industrial Discharges

On October 30, 2002, the Forum amended this policy for implementation of Colorado River salinity standards through the NPDES permit program in order to address the following three additional types of industrial discharges: (1) water that has been used for once-through noncontact cooling water purposes; (2) new industrial sources that have operations and associated discharges at multiple locations; and (3) "fresh water industrial discharges" where the discharged water does not cause or contribute to exceedances of the salinity standards for the Colorado River System. This policy was also amended to encourage new industrial sources to conduct or finance one or more salinity-offset projects in cases where the permittee has demonstrated that it is not practicable to prevent the discharge of all salt from proposed new construction.

Discharges Of Once-Through Noncontact Cooling Water

Section I.C. of this policy has been added to address discharges of water that has been used for once-through noncontact cooling water purposes. The policy for such discharges shall be to permit these uses based upon a finding that the returned water does not contribute to the loading or the concentration of salts in the waters of the receiving stream beyond a *de minimis* amount. A *de minimis* amount is considered, for purposes of this policy, as an average annual increase of not more than 25 milligrams per liter (mg/L) in total dissolved solids measured at the discharge point or outfall prior to any mixing with the receiving stream in comparison to the total dissolved solids concentration measured at the intake monitoring point of the cooling process or facility. This policy is not intended to supersede any other water quality standard that applies to the receiving stream, including but not limited to narrative standards promulgated to prohibit impairment of designated uses of the stream. It is the intent of the Forum to permit the return of once-through noncontact cooling water only to the same stream from which the water was diverted. Noncontact cooling water is distinguished from blowdown water, and this policy specifically excludes blowdown or any commingling of once-through noncontact cooling water with another waste stream prior to discharge to the receiving stream. Sections I.A. and I.B. of this policy govern discharges of blowdown or commingled water.

New Industrial Sources with Operations and Discharges at Multiple Locations under Common or Affiliated Ownership or Management

Recently there has been a proliferation of new industrial sources that have operations and associated discharges at multiple locations. An example is the recent growth in the development of energy fuel and mineral resources that has occurred in the Upper Colorado River Basin. This type of industrial development may involve the drilling of relatively closely spaced wells into one or more geological formations for the purpose of extracting oil, gas or minerals in solution. Large-scale ground water remediation efforts involving multiple pump and treat systems operating for longer than one year may share similar characteristics. With such energy and mineral development and ground water remediation efforts there is the possibility of a single major industrial operation being comprised of numerous individual point source discharges under common or affiliated ownership or management that produce significant quantities of water as a waste product or byproduct over a long period. Given the large areal scope of these types of major industrial sources and the often elevated concentrations of salinity in their produced water, the total amount of salt loading that they could generate may be very large in comparison to the Forum's past and present salt removal projects. Relatively small quantities of this produced water could generate one ton per day in discharges to surface waters. Since salinity is a conservative water quality constituent, such discharges of produced water, if uncontrolled, could have an adverse effect on achieving the adopted numeric salinity standards for the Colorado River System.

These kinds of major industrial sources strain the conventional interpretation of the industrial source waiver for new construction set forth in Section I.A.1.a. of this policy, which authorizes a discharge of salinity from a single point source of up to one ton per day in certain circumstances. The Forum adopted this provision in 1977, well before most of the new major industrial sources that have operations and discharges at multiple locations began to appear in the Colorado River Basin. A new category of industrial sources is, therefore, warranted. NPDES permit requirements for "New Industrial Sources with Operations and Discharges at Multiple Locations under Common or Affiliated Ownership or Management" are set forth in Section I.D. of this policy. These new requirements are intended to apply to new industrial sources with operations that commence discharging after October 30, 2002.

For purposes of interpreting this policy, "common or affiliated ownership or management" involves the authority to manage, direct, superintend, restrict, regulate, govern, administer, or oversee, or to otherwise exercise a restraining or directing influence over activities at one or more locations that result in a discharge of salinity into the Colorado River System. Common or affiliated ownership or management may be through the ownership of voting securities or may be indicated where individual sources are related through one or more joint ventures, contractual relationships, landlord/tenant or lessor/lessee arrangements. Other factors that indicate two or more discharging facilities are under common or affiliated ownership or management include: sharing corporate executive officers, pollution control equipment and responsibilities, common workforces, administrative functions, and/or payroll activities among operational facilities at different locations.

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Fresh Water Industrial Discharges

Sections I.A. and I.B. of this policy have been amended to allow the permitting authority to authorize "fresh water industrial discharges" where the discharged water does not cause or contribute to exceedances of the adopted numeric salinity standards for the Colorado River System. Different end-of-pipe concentrations of salinity as shown in Table 1 of the policy, are appropriate for discharges to tributaries depending upon their location within the Basin. The concept of "benchmark concentrations" has been developed in order to address this need for different end-of-pipe concentrations. These benchmark concentrations are not to be interpreted as water quality standards. Rather, they are intended to serve solely for the establishment of effluent limits for implementing the waiver for "fresh water discharges." The allowance for freshwater discharges is intended to preserve flows from discharges in the Basin, which do not cause significant degradation of existing ambient quality with respect to salinity. Operations or individual discharges that qualify for the freshwater waiver shall not be subject to any further limitation on salt loading under this policy.

Salinity-Offset Projects

This policy has been amended to allow the permitting authority to authorize industrial sources of salinity to conduct or finance one or more salinity-offset projects when the permittee has determined that it is not practicable: (i) to prevent the discharge of all salt from proposed new construction; (ii) to reduce the salt loading to the Colorado River to less than one ton per day or 366 tons per year; or (iii) the proposed discharge is of insufficient quality in terms of TDS concentrations that it could be considered "fresh water" as defined below. Presently, the permitting authority can consider the costs and availability of implementing off-site salinity control measures to mitigate the adverse impacts of the permitted salt load. It is not intended that the applicant be required to develop or design an off-site salinity control project or establish a salt bank, but rather to assess the costs of conducting or buying into such projects where they are available. In the future the Forum or another entity may create a trading/banking institution to facilitate the implementation of a salinity-offset program, basin-wide. This would allow industrial sources to conduct or finance the most cost effective project available at the time an offset project is needed regardless of the project's location in the Basin.

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NPDES PERMIT PROGRAM POLICY
FOR IMPLEMENTATION OF COLORADO RIVER SALINITY STANDARDS

I. Industrial Sources

The Salinity Standards state that "The objective for discharges shall be a no-salt return policy whenever practicable." This is the policy that shall be followed in issuing NPDES discharge permits for all new industrial sources, and upon the reissuance of permits for all existing industrial sources, except as provided herein. The following addresses those cases where "no discharge of salt" may be deemed not to be practicable.

A. New Construction

1. "New construction" is defined as any facility from which a discharge may occur, the construction of which is commenced after October 18, 1975. (Date of submittal of water quality standards as required by 40 CFR 120, December 11, 1974.) Appendix A provides guidance on new construction determination. "A new industrial source with operations and discharging facilities at multiple locations under common or affiliated ownership or management" shall be defined for purposes of NPDES permitting, as an industrial source that commenced construction on a pilot, development or production scale on or after October 30, 2002.

   a. The permitting authority may permit the discharge of salt upon a satisfactory demonstration by the permittee that:

      i. It is not practicable to prevent the discharge of all salt from the new construction or,
      ii. In cases where the salt loading to the Colorado River from the new construction is less than one ton per day or 366 tons per year, or
      iii. The proposed discharge from the new construction is of sufficient quality in terms of TDS concentrations that it can be considered "fresh water" that would have no adverse effect on achieving the adopted numeric standards for the Colorado River System. The permitting authority may consider a discharge to be fresh water if the maximum TDS concentration is: (i) 500 mg/L for discharges into the Colorado River and its tributaries upstream of Lees Ferry, Arizona; or, (ii) 90% of the applicable in-stream salinity standard at the appropriate benchmark monitoring station for discharges into the Colorado River downstream of Lees Ferry as shown in Table 1, below

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Table 1

	Benchmark Monitoring Station	**Applicable Criteria**	**Freshwater Discharge (mg/L)**
1	Colorado River at Lees Ferry, Arizona	N/A	500
2	Colorado River below Hoover Dam	723	650
3	Colorado River below Parker Dam	747	675
4	Colorado River at Imperial Dam	879	790

b. Unless exempted under Sections I.A.1.a.ii. or iii., above, the demonstration by the applicant must include information on the following factors relating to the potential discharge:

(i) Description of the proposed new construction.
(ii) Description of the quantity and salinity of the water supply.
(iii) Description of water rights, including diversions and consumptive use quantities.
(iv) Alternative plans that could reduce or eliminate salt discharge. Alternative plans shall include:

(A) Description of alternative water supplies, including provisions for water reuse, if any;
(B) Description of quantity and quality of proposed discharge;
(C) Description of how salts removed from discharges shall be disposed of to prevent such salts from entering surface waters or groundwater aquifers;
(D) Costs of alternative plans in dollars per ton of salt removed; and
(E) Unless the permitting authority has previously determined through prior permitting or permit renewal actions that it is not practicable to prevent the discharge of all salt from the new construction in accordance with Section I.A.1.a.i., the applicant must

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include information on project options that would offset all or part of the salt loading to the Colorado River associated with the proposed discharge or that would contribute to state or interstate salinity control projects or salt banking programs.

(v) A statement as to the one plan among the alternatives for reduction of salt discharge that is recommended by the applicant and also information as to which of the other evaluated alternatives are economically infeasible.

(vi) Such other information pertinent to demonstration of non-practicability as the permitting authority may deem necessary.

c. In determining what permit conditions shall be required under I.A.1.a.i., above, the permit issuing authority shall consider, but not be limited to the following:

(i) The practicability of achieving no-discharge of salt from the new construction.

(ii) Where "no discharge" is determined not to be practicable:

(A) The impact of the total proposed salt discharge of each alternative on the lower mainstem in terms of both tons per year and concentration.

(B) Costs per ton of salt removed from the discharge for each plan alternative.

(C) Capability of minimizing salinity discharge.

(D) If applicable under I.A.1.b.(iv)(E), costs and practicability of offsetting all or part of the salt load by the implementation of salt removal or salinity control projects elsewhere in the Colorado River Basin. The permittee shall evaluate the practicability of offsetting all or part of the salt load by comparing such factors as the cost per ton of salt removal for projects undertaken by the Colorado River Basin Salinity Control Forum and the costs in damages associated with increases in salinity concentration against the permittee's cost in conducting or buying into such projects where they are available.

iii. With regard to subparagraphs, (b) and (c) above, the permit issuing authority shall consider the compatibility of state water laws with either the complete elimination of a salt discharge or any plan for minimizing a salt discharge.

B. Existing Facilities or any discharging facility, the construction of which was commenced before October 18, 1975

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1. The permitting authority may permit the discharge of salt upon a satisfactory demonstration by the permittee that it is not practicable to prevent the discharge of all salt from an existing facility.

2. The demonstration by the applicant must include, in addition to that required under Section I.A.1.b the following factors relating to the potential discharge:

    a. Existing tonnage of salt discharged and volume of effluent.

    b. Cost of modifying existing industrial plant to provide for no salt discharge.

    c. Cost of salt minimization.

3. In determining what permit conditions shall be required, the permit issuing authority shall consider the items presented under I.A.1.c.(ii), and in addition; the annual costs of plant modification in terms of dollars per ton of salt removed for:

    a. No salt return.

    b. Minimizing salt return.

4. The no-salt discharge requirement may be waived in those cases where:

    a. The discharge of salt is less than one ton per day or 366 tons per year; or

    b. The permitting authority determines that a discharge qualifies for a "fresh water waiver" irrespective of the total daily or annual salt load. The maximum TDS concentration considered to be fresh water is 500 mg/L for discharges into the Colorado River and its tributaries upstream of Lees Ferry, Arizona. For discharges into the Colorado River downstream of Lees Ferry the maximum TDS concentration considered to be afresh water shall be 90% of the applicable in-stream standard at the appropriate benchmark monitoring station shown in Table 1, above.

C. Discharge of Once-Through Noncontact Cooling Water

1. Definitions:

    a. The terms "noncontact cooling water" and "blowdown" are defined as per 40CFR 401.11 (m) and (n).

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b. "Noncontact cooling water" means water used for cooling that does not come into direct contact with any raw material, intermediate product, waste product or finished product.

c. "Blowdown" means the minimum discharge of recirculating water for the purpose of discharging materials contained in the water, the further buildup of which would cause concentration in amounts exceeding limits established by best engineering practice.

d. "Salinity" shall mean total dissolved solids as the sum of constituents.

2. Permits shall be authorized for discharges of water that has been used for once-through noncontact cooling purposes based upon a finding that the returned water does not contribute to the loading of salts or the concentration of salts in the waters of the receiving stream in excess of a *de minimis* amount.

3. This policy shall not supplant nor supersede any other water quality standard of the receiving stream adopted pursuant to the Federal Clean Water Act, including but not limited to impairment of designated uses of the stream as established by the governing water quality authority having jurisdiction over the waters of the receiving stream.

4. Noncontact cooling water shall be distinguished from blowdown, and Section 1.C. of this policy specifically excludes blowdown or any commingling of once-through noncontact cooling water with another waste stream prior to discharge to the receiving stream. Sections I.A. and I.B of this policy shall in all cases govern discharge of blowdown or commingled water.

5. Once-through noncontact cooling water shall be permitted to return only to the same stream from which the water was diverted.

6. Because the increase in temperature of the cooling water will result in some evaporation, a *de minimis* increase in the concentration of dissolved salts in the receiving water may occur. An annual average increase in total dissolved solids of not more than 25 milligrams per liter (mg/L) measured at the intake monitoring point, as defined below, of the cooling process or facility, subtracted from the effluent total dissolved solids immediately upstream of the discharge point to the receiving stream, shall be considered *de minimis*.

7. At the time of NPDES discharge permit issuance or reissuance, the permitting authority may permit a discharge in excess of the 25 mg/L increase based upon a satisfactory demonstration by the permittee pursuant to Section 1.A.1.a.

8. Once-through demonstration data requirements:

   a. Description of the facility and the cooling process component of the facility.

   b. Description of the quantity, salinity concentration and salt load of intake water sources.

   c. Description of the discharge, covering location, receiving waters, quantity of salt load and salinity concentration of both the receiving waters and the discharge.

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d. Alternative plans for minimizing salt discharge from the facility which shall include:

(i) Description of alternative means to attain no discharge of salt.
(ii) Cost of alternative plans in dollars per ton of salt removed from discharge.
(iii) Such other information pertinent to demonstration of non-practicability as the permitting authority may deem necessary.

9. If, in the opinion of the permitting authority, the database for the salinity characteristics of the water source and the discharge is inadequate, the permit will require that the permittee monitor the water supply and the discharge for salinity. Such monitoring program shall be completed in two years and the permittee shall then present the once-through demonstration data as specified above.

10. All new and reissued NPDES permits for once-through noncontact cooling water discharges shall require at a minimum semiannual monitoring of the salinity of the intake water supply and the effluent, as provided below.

a. The intake monitoring point shall be the point immediately before the point of use of the water.
b. The effluent monitoring point shall be prior to the discharge point at the receiving stream or prior to commingling with another waste stream or discharge source.
c. Discrete or composite samples may be required at the discretion of the permitting authority, depending on the relative uniformity of the salinity of the water supply.
d. Analysis for salinity may be either total dissolved solids or electrical conductivity where a satisfactory correlation with total dissolved solids has been established. The correlation shall be based on a minimum of five different samples.

D. Discharges of Salinity from a New Industrial Source with Operations and Discharging Facilities at Multiple Locations

1. The objective for discharges to surface waters from a new industrial source with operations and discharging facilities at multiple locations shall be to assure that such operations will have no adverse effect on achieving the adopted numeric salinity standards for the Colorado River System.

2. NPDES permit requirements for a new industrial source with operations and discharging facilities at multiple locations shall be defined, for purposes of establishing effluent limitations for salinity, as a single industrial source if these facilities meet the criteria:

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a. The discharging facilities are interrelated or integrated in any way including being engaged in a primary activity or the production of a principle product; and

b. The discharging facilities are located on contiguous or adjacent properties or are within a single production area e.g. geologic basin, geohydrologic basin, coal or gas field or 8 digit hydrologic unit watershed area; and

c. The discharging facilities are owned or operated by the same person or by persons under common or affiliated ownership or management.

3. The permitting authority may permit the discharge of salt from a new industrial source with operations and discharging facilities at multiple locations if one or more of the following requirements are met:

a. The permittee has demonstrated that it is not practicable to prevent the discharge of all salt from the industrial source. This demonstration by the applicant must include detailed information on the factors set forth in Section I.A.1.b of the Policy for implementation of Colorado River Salinity Standards through the NPDES permit program; with particular emphasis on an assessment of salinity off-set options that would contribute to state or interstate salinity control projects or salt banking programs and offset all or part of the salt loading to the Colorado River associated with the proposed discharge.

b. In determining what permit conditions shall be required under I.A.1.a.i., above, the permit issuing authority shall consider the requirement for an offset project to be feasible if the cost per ton of salt removal in the offset project options (i.e. the permittee's cost in conducting or buying into such projects where they are available) is less than or equal to the cost per ton of salt removal for projects undertaken by the Colorado River Basin Salinity Control Forum or less than the cost per ton in damages caused by salinity that would otherwise be cumulatively discharged from the outfalls at the various locations with operations controlled by the industrial source; or

c. The pemittee has demonstrated that one or more of the proposed discharges is of sufficient quality in terms of TDS concentrations to qualify for a "fresh water waiver" from the policy of "no salt return, whenever practical." An individual discharge that can qualify for a fresh water waiver shall be considered to have no adverse effect on achieving the adopted numeric salinity standards for the Colorado River System.

4. For the purpose of determining whether a freshwater waiver can be granted, the quality of water discharged from the new industrial source with operations and discharging facilities at multiple locations, determined as the flow weighted average of salinity measurements at all outfall points, must meet the applicable benchmark concentration in accordance with Section I.A.1.a.iii., as set forth above.

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5. Very small-scale pilot activities, involving 5 or fewer outfalls, that are sited in areas not previously developed or placed into production by a new industrial source operations and discharges at multiple locations under common or affiliated ownership or management, may be permitted in cases where the discharge of salt from each outfall is less than one ton per day or 366 tons per year. However, no later than the date of the first permit renewal after the pilot activities have become part of a larger industrial development or production scale effort, all discharging facilities shall be addressed for permitting purposes as a single industrial source with operations and discharges at multiple locations under common or affiliated ownership or management.

6. The public notice for NPDES permits authorizing discharges from operations at multiple locations with associated outfalls shall be provided promptly and in the most efficient manner to all member states in the Colorado River Basin Salinity Control Forum in relation to this policy.

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Document #555 Hedden, Bill Grand Canyon Trust

Cathy Thomas

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From: Bill Hedden [bhedden@grandcanyontrust.org]
Sent: Thursday, February 17, 2005 11:35 AM
To: moabcomments
Subject: Moab Comments

Please substitute the attached comments from the Grand Canyon Trust for the set of comments sent 2/16. These have been amended to correct several typos and to add additional signatories.

Thank you,
Bill Hedden
Grand Canyon Trust

<<Atlas Comments.doc>>

2/18/2005

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February 16, 2005

Moab DEIS Comments
U.S. Department of Energy Grand Junction
2597 B3/4 Road
Grand Junction, Colorado 81503

Comments on Moab DEIS
DOE/EIS-0355D

The Grand Canyon Trust and other conservation groups listed at the end of these remarks appreciate the opportunity to submit comments on the Draft EIS ***Remediation of the Moab Uranium Mill Tailings.***[1] It is our position that the Klondike Flats or Crescent Junction offsite alternatives offer the best balance of long-term isolation of the wastes at reasonable cost. Onsite stabilization is fraught with many uncertainties regarding critical issues that could result in impoundment failure and release of contaminants into the City of Moab and the Colorado River, as well as the virtual certainty that ground and surface water treatment under this alternative will be much less successful than if the tailings were removed. We also find that the analysis of socioeconomics completely ignores the likely consequences of tailings pile failure for the local and regional economies, despite the fact that these costs could easily dwarf the entire cost of tailings reclamation under any scenario.

General Concerns

Importance of the Colorado River
In our view, a central shortcoming of the DEIS is its consistent failure to recognize the overriding importance of two primary issues. The first is the extraordinary importance of the Colorado River to the natural systems and human societies of the Southwestern U.S. No other resource except air is more critical to this region. Every drop of the river is already appropriated for human use, as drinking water for 26 million people and irrigation for some of the country's most high value food crops. The region served by the river is the nation's fastest growing area, so allocation of this scarce water source will almost certainly become an even more dominant theme of western society over the coming decades and centuries.

[1] (Note: It is difficult to organize comments on the DEIS as written because the principal subjects are divided up and discussed repetitively in many parts of the document. Thus, for example, groundwater compliance strategies are discussed in detail in the introduction in several places, again in chapters 2.3, 3.1.6, 3.2.4, 3.3.5, 3.4.5, 4.1.3, 4.2.3, 4.3.3, 4.4.3, 4.6.3, and throughout the regulatory requirements and appendices. When these comments suggest changes in the DEIS, reference is usually made only to one or two of the prime discussions in the document, rather than trying to comprehensively suggest changes in every applicable section, even though all such corrections are implied by the comments.)

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One hundred years ago the Colorado flowed free into the Gulf of California. In the intervening time, more money has been spent per gallon putting this river to use for human benefit than any other sizeable river on earth. Trying to predict use of the river over the coming millennium reveals the limits of imagination, but the only responsible course is to assume that the water will be incredibly precious. None of these matters is discussed in the DEIS, despite the massive and ongoing contamination of the river by tailings discharge, and the threat of catastrophic tailings pile failure.

Never looking into the future, DOE always proceeds as though there is no significant human use of the river in the vicinity and resolutely defines the issue as simply the protection of aquatic organisms and river runners in the vicinity near the tailings pile. This failure is so important that it nearly invalidates the entire DEIS as a decision-support tool. On page 4-56, there is a matter-of-fact discussion of scenarios in which radioactive wastes and other toxins might be spread throughout the river and riparian zone for a hundred miles, concluding, "A major tailings release is not anticipated to significantly increase risks to human populations downstream of Lake Powell." That is the extent of analysis for a disaster that could turn life in three states and part of Mexico upside down, and that would carry a staggering price tag.

As we will point out in these comments, this conceptual failure resonates throughout the DEIS, biasing many of the risk analyses, rendering the ground and surface water treatment plans inadequate, and leading to the wrong conclusions about the consequences of possible tailings pile failure. This is why the governors of Utah, New Mexico, Arizona, Nevada and California wrote DOE on 12/29/04 saying, "We want to make it clear that any remediation other than an off-site option is unacceptable." Similarly, on February 9, 2005, the entire Utah congressional delegation wrote Secretary Bodman to say, "We believe the only appropriate action is to move the tailings pile from the banks of the river." We agree.

Failure to Adequately Plan for the Long Term

The second outstanding issue given short shrift in the DEIS is the necessity of preparing a reclamation plan that will truly isolate the wastes over the long term. The National Academies' Board on Radioactive Waste Management points out in its Report to DOE that "the tailings represent a hazard that essentially lasts forever." They go on to say,

> "DOE should…recognize that there is no physical basis for a line to be drawn at 1,000 years; indeed…the hazards to humans and ecosystems from the mill tailings will last far longer than any period of regulatory compliance."

Throughout the DEIS are references to the EPA standard at 40 CFR 192.02 (a) that control of mill tailings shall be designed to "Be effective for up to one thousand years, to the extent reasonably achievable, and, in any case, for at least 200 years." This was written in recognition of the fact that radioactivity in the tailings will have declined by less than 1% after a millennium. The Klondike and Crescent Junction offsite alternatives offer excellent prospects of complying with the letter and spirit of this standard. But, for

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the onsite alternative, when the DEIS evaluates the durability of structures proposed to be built directly in the path of powerful floods, this standard seems to have been interpreted to mean, "We hope they might last for as long as 200 years," and when considering a fully expected gush of concentrated contaminants to the river, "Don't worry, it won't happen until 1,100 years out." These games with numbers are completely unacceptable when the water supply for the Southwest is at stake. Uncertainties with such serious consequences must be resolved through extreme caution, and that is systematically lacking in the DEIS with regard to the long term stability of onsite reclamation.

The Requirement to Minimize Maintenance
This point is reinforced by consideration of a rarely mentioned section of the EPA standard at 40 CFR 192.02 (d), which says, in its entirety, "Each site on which disposal occurs shall be designed and stabilized in a manner that minimizes the need for future maintenance." What this standard really requires is a tailings impoundment so robust and stable that it will still be going strong at 1,000 years, with good prospects of lasting far longer.

That is likely unachievable with onsite reclamation at the difficult Moab site, as the DEIS makes clear. On page 2-176 DOE explains that it does not believe issues like river migration need to be resolved before making a reclamation decision, because continuous monitoring will allow for remedial actions in the future if assumptions turn out to be wrong. Yet, on page 2-171 is a discussion describing the ways migration of the river could increase contaminant levels and require expenditures for riprap walls and other remedies up to tens or hundreds of millions of dollars. At the extreme, the DEIS says, perpetual treatment or mitigation might be required, or the tailings would have to be relocated after all onsite costs and efforts had been committed. This potential disaster illustrates why DOE's regulatory guidance mandates selection of a reclamation alternative that calls for minimum maintenance.

This minimum maintenance standard has the same preeminent weight in law as the 200-1,000 year timeframe, the requirement to control radon releases, and the requirement to protect groundwater, yet DOE does not quote it in the DEIS, nor give much priority to its dictate, because that requirement argues so heavily against capping the tailings on wet alluvium in the floodplain of a famously unpredictable river. As with underestimating the importance of the Colorado River, these comments will show that the DEIS is compromised in many places by the failure to truly envision and plan for what the river might do over a thousand years, or to imagine changes at the Moab site and in society during that time. These fundamental failures and all the errors arising from them must be corrected in the FEIS in order to allow selection of the best Preferred Alternative.

Regulatory Requirements

42 USC 7912 (f) (3) Ignored
Section 1.1 of the DEIS, which recounts the regulatory history of DOE's involvement with the Moab site, arbitrarily omits a key provision of law. Page 1-31 of the DEIS says that the *Floyd Spence Act* requires that "DOE prepare a remediation plan to evaluate the

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costs, benefits, and risks associated with various remediation alternatives." This is presented as the primary legal driver behind the entire DEIS. However, the *Floyd Spence Act* contains an even more specific provision regarding the Moab site, one that was the centerpiece of the legislation long before the last minute addition of the language DOE quotes in the DEIS. This provision is codified at 42 USC 7912 (f) (3):

> Remediation—Subject to the availability of appropriations for this purpose, the Secretary shall conduct remediation at the Moab site in a safe and environmentally sound manner that takes into consideration the remedial action plan prepared pursuant to section 3405 (i) of the Strom Thurmond National Defense Authorization Act for fiscal Year 1999 (10 U.S.C. 7420 note; Public Law 105-261), including—
> ***(A) ground water restoration; and***
> (B) ***the removal, to a site in the State of Utah, for permanent disposition and any necessary stabilization, of residual radioactive material and other contaminated material from the Moab site and the floodplain of the Colorado River."*** (emphasis added)

Legislators intended this language to result in removal of the mill wastes from the flood plain of the river. Utah Senator Bob Bennett said, upon passage of the bill, "Bottom line; the tailings will be moved" (personal communication). California Congressman George Miller, who also played a leading role in writing and supporting the legislation, said, "The tailings will be moved" (personal communication).

The intent of this language is entirely consistent with DOE practice throughout the UMTRA program. Every tailings pile located beside a river (with the exception of the Shiprock site, which is on a high bluff) was removed to a safer location, despite the fact that DOE had no such specific legislative guidance regarding sites other than Moab. Moreover, the Moab site is far larger than any of the other tailings piles, and is more polluting to the river than all of the other sites combined. It is also threatened by the largest, wildest river, since the Gunnison and Dolores rivers and numerous streams have added their flows to the Colorado between the Grand Junction site and the Moab site. DOE must explain in the FEIS how it is interpreting its own regulations to reach this point where the biggest, most polluting and most threatened tailings pile may be the only one left beside a river, despite the fact that this site also has the most specific legislative mandate to be removed. Failure to so explain will render any onsite disposal decision arbitrary and capricious in the extreme.

Groundwater Remediation

Inappropriate Application of Supplemental Standards
An essential part of the DEIS is DOE's assertion that the groundwater compliance strategy will be almost independent of the decision about where and how to reclaim the tailings pile. Whether the 11.9 million tons of tailings and their 21.6 million cubic feet of

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highly contaminated pore water are left in place seeping into the groundwater or completely removed is considered to have no effect on the appropriate plans for cleanup.

The DEIS does not come close to explaining the credibility of this counter-intuitive conclusion. However, central to the logic is an unacceptable partitioning of the ground water from the surface water to which it is hydraulically connected right at the site boundary. DOE has decided to authorize itself to apply Supplemental Standards because the aquifer under the pile qualifies as "limited-use groundwater" due to its high TDS content, despite the fact that this aquifer, and the millsite contaminants in it, discharge directly into the water supply for 26 million people at the site boundary at levels far exceeding standards for many regulated substances (page 1-39 and following; 2-90 and following). Arsenic, cadmium, molybdenum, nitrate, radium, selenium, uranium and gross alpha exceed 40 CFR 192 maximum concentration limits, and ammonia and sulfate exceed risk-based concentrations. It is unacceptable to assert, as the DEIS does on page 1-40, 2-90, and elsewhere, that discharge of such groundwater to the Colorado River "pose(s) no risk to humans."

Humans use all the water in the Colorado River, and there is no safe minimum dose of uranium. After a millennium, our descendents may be reverently lifting water out of this river in thimbles. Moreover, within decades, the City of Moab will likely be much larger and drawing drinking water directly from the river. The conclusion that people will not be affected by poisoning the river is one of the pernicious results of the failure to place adequate weight on the importance of the Colorado River to the human communities of the Southwest, or to clearly envision changes over the long regulatory time periods. Instead of this compliance strategy that simply defines away risks to humans, DOE must lay out a plan for permanently removing the mill related contaminants from the groundwater before they reach the river. If it is more expensive and complex to do this with the tailings in place, then that is a major strike against that option.

Finally, Dr. Kip Solomon's work has shown that the Colorado is probably not a complete barrier to the passage of contaminated groundwater across to the Moab side of the river. Elevated uranium concentrations are found in groundwater beneath the Matheson Wetland Preserve in a pattern that suggests subsurface transfer beneath the river. This is another pathway for the tailings contaminants to affect human receptors. The DEIS acknowledges this on page 2-172, where it says that the under-river flow could prohibit achieving protective surface water criteria, a situation that could result in perpetual groundwater remedial action. Uncertainties of this sort, that could involve huge costs and human health risks, should be written in large red letters in the FEIS. Essentially all the many uncertainties of this nature are about the onsite alternative. The offsite alternatives are much more nearly certain to result in long term isolation of the wastes without the need for maintenance. The FEIS should group all these potentially catastrophic uncertainties together in one chart and highlight which alternatives they apply to.

Groundwater Standards as Promulgated Already Reflect Cost/Benefit Analysis
The DEIS does not consider the fact that the groundwater standards were originally promulgated after careful weighing of costs and benefits. It is

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inappropriate to perform another round of cost/benefit analysis when determining if standards can be met onsite. For example, in the January 11, 1995 *Federal Register Notice* through which EPA announced the "Final Rule Regarding Groundwater Standards for Remedial Actions at Inactive Uranium Processing Sites," the Administrator includes a section titled "Costs," which states,

> "In 1983, Congress amended UMTRCA to provide that when establishing standards the Administrator should consider, among other factors, the economic costs of compliance. We have considered these costs in two ways. First, we compared them to the benefit, expressed in terms of the value of the product--processed uranium ore--which has led to contamination of groundwater at these sites. We estimate the present value of the processed uranium ore from these sites as approximately 3.9 billion dollars (1989 dollars). The estimated cost of compliance is approximately 5.512% this value, and we judge this to be a not unreasonable incremental cost for the remediation of contamination from the operations which produced this uranium. As a second way of considering the economic costs of compliance, we examined the cost of alternative ways to supply the resources for future use represented by these groundwaters. As noted earlier, water is a scarce resource in the Western States where this cleanup would occur. When other resources have been exhausted, the only remaining alternative to cleaning up groundwater in the vicinity of these sites is to replace this water by transporting water from the nearest alternative source. Our analysis of the costs of doing this indicates that it is significantly more costly to supply water from alternative sources than it would be to clean up the groundwater at these sites. We have concluded, therefore, that this final rule involves a reasonable relationship between the overall costs and benefits of compliance."

When DOE proposes in the DEIS to accept levels of contamination of ground water far higher than EPA standards, this decision must not be based on cost considerations that have already been factored into the standards.

One Groundwater Compliance Strategy, Very Different Results
On the other hand, the proposed groundwater compliance strategy may simply be the only technically feasible plan due to the difficult constraints of the site. Among other things, the tailings pile itself blocks access to much of the contaminated groundwater, over-pumping the groundwater will bring highly saline water to the surface, and all wells, pipelines, trenches and treatment facilities installed between the pile and the river will be subject to damage or destruction from periodic flooding.

If this is the only achievable plan, rather than the best plan, DOE must acknowledge these limitations and prepare to do everything it can to minimize further contamination of the groundwater and hydraulically connected surface water that provides critical wildlife habitat and irreplaceable drinking water. And it is in this regard that the offsite

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alternatives, which remove the source of contamination and result in permanent cleansing of the aquifer, have enormous benefits over the onsite alternative.

The difference in expected performance of the groundwater compliance strategy under different remediation alternatives is partially expressed on page 2-109:

> "Because seepage from the tailings pile represents a long term source of groundwater loading, an onsite disposal decision could result in longer term ground water remediation; higher concentrations of residual groundwater contamination would also be expected to remain at the conclusion of the remediation time period (see figure 2-43). The longer operational time period would also result in a corresponding increase in operational costs of the system. Uncertainties associated with model predictions for the onsite disposal alternative involve both the time to meet steady state conditions and the question of whether the target goals could be met."

The issue of whether target goals can ever be met if the tailings are left in place is another of the red letter uncertainties that should play a central role in selection of an alternative. The choice is a stark one. Today, the tailings pile is leaking an estimated 28,800 gallons per day of pore water with mean concentrations of 61 pCi/l of radium-226 (12x the MCL), 15.6 mg/l uranium (355x the MCL), and 1,100 mg/l ammonia (366x the acute lethal dose for fish) into the groundwater (DESI page 3-11). This toxic seepage would be completely stopped and replaced with flushing rainwater within 10 years under the offsite alternatives, but will continue forever with onsite remediation.

At page 4-7 the DEIS says that the cap is expected to reduce infiltration, from the current rate of 20 gpm to 0.8 gpm, 130 years after installation of a 5 X 10^{-8} cm/second cap (the tightest yet built), but the National Academies Committee warns in its report to DOE that tailings caps routinely become two orders of magnitude more permeable over time, so influx rates may well be higher than those modeled. The increasing leakiness of the cap over time is not analyzed in the DEIS.

This is another critical uncertainty, as shown in Figure 2-43. Somehow, DOE predicts identical reductions in groundwater ammonia over 75-80 years, whether the tailings and their seepage are left in place or removed, but thereafter concentrations plunge quickly and permanently to near zero in the offsite scenario while hovering close to the acute lethal dose essentially forever under the onsite scenario. Small errors in estimating either the seepage rates or the concentrations of contaminants could result in never reaching groundwater targets, yet Table 2-33 shows that ammonia concentrations could be ten times as high as predicted. If true, onsite remediation will never achieve groundwater goals and remediation will continue indefinitely. DOE must revise this entire section in the FEIS to show that the groundwater treatment results are not at all equivalent depending on the reclamation option chosen.

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Long Term Performance of the Groundwater Compliance Strategy
The discussion of the long term performance of the groundwater strategy fails to consider the effects of periodic flooding on the infrastructure that must be built in the floodplain of the river. Page 2-99 tells us to expect 50-150 extraction wells and/or 2,000 feet of shallow trenches in this flood prone area, and page 2-104 goes on to describe the need for emission controls, holding tanks, water lines, electrical lines, chemical storage areas, and pumps. All of this $10 million investment must be expected to withstand a 100-year flood with its fast moving driftwood logs, erosion and mud. Again, this is why the alternatives that actually reach acceptable goals through natural flushing are far better than those requiring a lot of technology and maintenance. A discussion of these problems is necessary in the FEIS.

These expected river floods have another effect on the performance of the groundwater treatment system. Page 4-10 reveals that simulations of the 1984 flood of 70,000 CFS show that this river stage will add 4.4 million gallons of water to the tailings, which then will drain at 307 gpm (more than 15 times the current rate) for ten days. This is expected to raise groundwater ammonia concentrations by 2 mg/l (66% of the acute lethal dose for fish) over ten years. However, the document trivializes this result and the sure prospect for future repeats by saying, "However, the effects of a tailings inundation would decline rapidly over a period of approximately 20 years after the flood event." Here again, the DEIS has lost sight of the unacceptability of contaminating the Colorado River for decades. What aggravated contamination will result from a repeat of the 1884 flood, estimated at 125,000 CFS? How about the 500-year flood, or the Probable Maximum Flood (PMF), which will flood the pile to a depth of 25 feet? The FEIS must discuss these floods with a proper appreciation of their inevitability and their effects on renewed contamination if the tailings are reclaimed onsite. Somehow, the selection of a preferred alternative must focus on the common sense of remarks in the DEIS like the one on page 2-120, which says, "In contrast to the onsite disposal and No Action alternatives, the offsite disposal alternative presents no risk of these recurrences of surface water contamination at the Moab site because the tailings pile will be removed."

The third significant long term problem with groundwater treatment under the onsite alternative involves the probable presence of an ammonia salt layer in the upper part of the pile. Ammonia in this layer of the tailings is concentrated to 18,000 mg/l, and this extremely toxic pore water is expected to sink down, eventually reaching the groundwater in 1,100 years. This will result in resumption of non-protective surface water quality for an estimated 440 years (DEIS page 2-114). It completely violates the spirit of the 40 CFR 192 standards to minimize the importance of this situation simply because it is predicted (with no discussion of confidence limits) to occur just after the period of regulatory compliance has ended. The population of the Southwest will likely curse our memories if the tailings are left in place to add this surprise to their water supply.

Finally, the DEIS tells us that onsite tailings disposal will ultimately fail even if there are never any catastrophic floods or earthquakes. The tailings pile is gradually settling due to

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natural basin subsidence and will be permanently immersed in the groundwater after 7,000-10,000 years. "Ground water beneath the Moab site would remain contaminated, would not be protective of human health, and would continue in perpetuity to discharge contaminants to the surface water at concentrations that would not be protective of aquatic species" (DEIS page 2-119). The words are somber, though DOE refuses to recognize how critical the river might be to a civilization that far in the future. This dismal outcome is obviously beyond the limit of regulatory compliance, but why on earth should we plan for it when there are straightforward alternatives that completely avoid the problem?

Compliance Strategy is Likely Not Protective of Aquatic Organisms
DOE recognizes the difficulty of predicting how various water treatment plans will affect aquatic organisms. "The variables affecting prediction accuracy are many, and the system of contaminant transport and the interaction between groundwater and surface are complex, largely due to the dynamic nature of river stage and backwater area morphology" (DEIS page 2-109). The plan is in error, however, when DOE concludes that it will be conservative and protective of aquatic organisms to aim for the acute lethal dose in groundwater, with no allowance for dilution in surface water.

First, the acute standard of 3 mg/l ammonia aimed at is too high by a factor of five. The State of Utah believes that the chronic and acute standards should both be set at 0.6 mg/l ammonia (DEIS page 2-176). This is corroborated by the Columbia Biological Lab results showing mortality of fish introduced to the near shore waters of the Colorado. Concentrations of ammonia in the range of 3 mg/l kill the fish; that is why this is called the acute lethal dose.

The goal in groundwater is important, because groundwater truly is not much diluted in some of the most important fish habitat. The conservatism assumed in the DEIS is not real. The young fish depend on side channels and backwaters where groundwater remains relatively undiluted. These are the areas where ammonia concentrations in surface water of up to 1,800 mg/l have been measured, with resultant 100% fish mortality. Young pikeminnows rely principally on these backwater areas for the first 2-4 years of life (DEIS page 3-36). If the goal of 3 mg/l ammonia is reached in groundwater, then significant areas of critical habitat will be kept at a level right at the threshold of lethality for the duration of the active groundwater treatment program. Trying to cut it close on river contamination like this is unwise because the sensitivity analysis shows that the tailings seepage concentration is the key factor in determining whether targets will be met (DEIS page 2-108), and DOE has assumed seepage concentrations near the bottom of the expected range.

The active flushing program may alleviate this situation, but at the cost of complete disregard of the maintenance minimization standard at 40 CFR 192. Would DOE so casually allow for radon releases high above the 40 CFR 192 standard? Again, the groundwater treatment infrastructure will be constructed in the floodplain of the river, subject to possible major flooding, so it is far wiser to remove as much of the future contamination as possible through offsite remediation. This will also offer another

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benefit not analyzed in the DEIS at all: if the tailings are removed, DOE will be able to install extraction wells across the entire 130 acres above the most intense part of the legacy plume. These will be farther from the river than the system described in the DEIS, hence safer from flooding.

Page 3-27 of the DEIS describes the existence of a large plume of high TDS, ammonia laden water from the tailings pile that has sunk to a neutrally buoyant level in the deeper brine beneath the mill wastes. If the tailings were moved to an offsite location, would it not be possible to complete an extraction well within the plume and remove this potential source of future surface contamination from the groundwater? The FEIS should examine this possibility.

River Migration and Major Flooding

The DEIS is most deficient and diverges most radically from the opinions of other experts in its evaluation of the possibilities and consequences of tailings pile failure from flooding or migration of the Colorado River over the thousand year regulatory period. Since such a failure is the most important thing that could possibly occur at the Moab site, this is an unacceptable weakness in the DEIS. Additionally, the analyses on which DOE relies to reach its conclusions are not adequately described in the DEIS, but scattered in many other technical reports, placing an unreasonable burden on interested citizens who are trying to inform themselves.

River Migration
In the 11/2003 Letter Report "Migration Potential of the Colorado River Channel Adjacent to the Moab Project Site," DOE relies on a skewed analysis of scanty data to conclude that subsidence of the Moab Valley will gradually cause the river to migrate south, away from the tailings pile. This seems counter to the facts in several ways. First, the bedrock canyon upstream from Moab will continue to aim and concentrate the energy of the river directly toward the tailings pile as it enters the Moab Valley, and this location and orientation will not change. Second, the most recent data show that the valley fill is deepest north of the present location of the river, so a reasonable projection of greatest future subsidence would lead to the conclusion that the river will migrate north if subsidence is the controlling factor (USGS *Initial-Phase Investigation of Multi-Dimensional Streamflow Simulations in the Colorado River, Moab Valley, Grand County, Utah, 2004* Figure 5, page 19). Third, the sediment load carried by the Colorado River is hundreds of times greater than what is needed to compensate for valley subsidence, so the most likely scenario is that the river will continue to meander back and forth across the extreme north end of the valley, including the site of the tailings pile, as it has been doing for thousands of years. DOE seems to be willfully drawing the wrong conclusion when it interprets the fact that the tailings pile is underlain by coarse river cobbles to mean that the toe of the pile is now armored against floods. Floods put all those cobbles there during events of great violence at the tailings site.

DOE also concludes that the channel is stable in its present location. Properly registered aerial photographs, however, reveal that the main channel has moved about 300 feet

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north in the reach just above the tailings pile since 1962. This large change probably resulted from construction of a small check dam on the south side of the river by Atlas workers who were attempting to deepen the flow along the north bank to increase the efficiency of their water pumps. The fact that a tiny bar can move the river hundreds of feet in decades shows how unpredictable the channel can be across this flat alluvial fan.

DOE's conclusion that the river is moving south also relies on the existence of river gravels on a terrace near the mouth of courthouse Wash and on driftwood recovered from a well boring north of the present Highway 191. That these are north of the present river course is adduced to mean that the river is moving south. However, even momentary study of aerial photographs of the Moab Valley makes clear that the supposed river terrace was never part of the normal course of the Colorado River. For that to be true, the river would have had to exit the mouth of the canyon, make an extreme right-hand turn, and run directly into the mouth of Courthouse Wash with its towering cliffs. It is far more likely that the river gravels were deposited there during a major flood event, probably during glacial times. Likewise, the buried wood probably was deposited and reburied during the deep scouring associated with flooding in the river. These bits of information tell us more about the dynamic nature of the river floodplain than about long term trends in channel location. The USGS *Initial-Phase Investigation of Multi-Dimensional Streamflow Simulations in the Colorado River, Moab Valley, Grand County, Utah, 2004* concludes that large floods will subject the entire north bank of the river to flows exceeding 12-feet/second, which will consequently be carrying large, highly erosive gravels that can deeply scour the river bed and cut away the river bank in dramatic fashion.

DOE also argues that floods in Courthouse Wash are likely to deposit sediments on the north side of the river, pushing the channel south. Courthouse Wash has no alluvial fan on the north side of the river, however. It is a high energy stream with a large drainage area, and floods in the drainage tend to occur when the Colorado flows are lowest. At these times, Courthouse Wash floods may exceed the flow in the river by a factor of three or more, causing the floods to jet across the river and deposit sediments on the south bank and in the Matheson Wetland. Aerial photographs support this interpretation. The net result would be to push the Colorado north, toward the tailings pile, just as the Atlas workers' dam did.

For all these reasons, the State of Utah and others have questioned the accuracy and reasonableness of DOE's predictions. It is troubling that there appears to be a consistent pattern of the agency downplaying the risks of leaving the tailings in the floodplain of the river. DOE acknowledges the disagreement, but counters by saying that monitoring at the site will allow future managers to take appropriate action to armor the pile, increase groundwater treatment, or ultimately move the tailings to a safer location if agency predictions turn out to be wrong. Without repeating at length our reminder that standards require DOE to plan for minimum maintenance, we point out that while such actions might be possible in the event of gradual river migration, changes in the channel are more likely to occur suddenly during a flood, making mitigating measures impossible. Even if it is possible to take action in time, investing hundreds of millions in moving the tailings

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after investing hundreds of millions capping them in place is one of the worst possible outcomes from this remediation decision. That is why Loren Morton, of the Utah Division of Radiation Control, described river migration as a "deal breaker." These truly critical shortcomings of the onsite alternative are obscured in the mass of relatively trivial information in the DEIS. DOE should rewrite it in a format that allows readers to understand the big issues without getting lost in the detritus. And DOE should eliminate from consideration the onsite alternative with its credible risk of total failure.

Catastrophic Floods

The person at DOE who will make the decision on the preferred alternative should be required to view the existing photo(s) of the 1917 flood event, when the Colorado River flowed at 76,000 CFS. When looking at the image of the river bursting out of the upstream portal and spreading in rapids all across the Matheson Wetland, this person should be informed that in 1884 there was a flood of 125,000 CFS. Then, this decision-maker should view aerial photos of the valley to understand that the tailings pile was built near the center of the alluvial fan that such floods have built where they break out of the upstream bedrock portal. The tailings pile is built atop coarse cobbles that are periodically scoured away and re-deposited by these floods. In the Probable Maximum Flood calculated by DOE (300,000 CFS), the flood waters would be 25 feet deep at the tailings pile, scouring to a depth of 25-50 feet (deeper scour reduces the depth, but increases the velocity of the floods striking the tailings pile). Since these kinds of floods are essentially certain to occur during the regulatory period, one wonders why the onsite alternative has not been rejected out of hand?

DOE's response seems to have two parts: first, big floods will dissipate their energy in the Matheson Wetland and in whirling around the Moab Valley in a sort of lake, so the tailings impoundment will be able to withstand deep inundation without collapsing. This view is directly contradicted by the recent USGS river modeling cited above, which is the most credible study to date.

The USGS study shows that the tailings pile is well within the 100-year floodplain and that it obstructs the overbank flow during these large floods. Water velocities sufficient to carry large gravels with great erosive force will hit the tailings pile and the northern bank of the river throughout the entire Moab Valley reach of the river. During the 100-year flood, these high erosive forces will inundate the tailings pile to a depth of 4 feet, and a PMF event will bury the tailings in 25 feet of fast moving water, even if the channel stays in its present location. Should the even more extreme erosive forces acting on the riverbank cause the channel to shift, the result would be sudden and devastating. As the predicted surface water elevation charts in the report show (Figure 17 and following), these large floods will cover the entire Matheson Wetland and substantial parts of the community of Moab, entering the Wetland at 40,000 CFS during a flood of one half the PMF. Failure of the tailings pile under these conditions would devastate the community. None of this is discussed in the DEIS. The FEIS must be rewritten to incorporate the USGS modeling results and make them count in the selection of the preferred alternative.

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The second part of DOE's response to the likelihood of flood induced impoundment failure is that it will not really matter if it happens. This is where the chronic underestimation of the importance of the river causes the DEIS to go most badly off track.

Beginning on page 4-53, the DEIS examines a tailings failure during a 150,000 CFS flood. As noted, the first error in this analysis is its failure to discuss the deposition of tailings material far up into the City of Moab. If the valley becomes a lake, as DOE asserts, then the tailings will be spread across the footprint of that lake, with devastating and extraordinarily expensive consequences for the community. This issue is completely ignored in the DEIS.

The DEIS goes on to describe the deposition of tailings material throughout the river channel and in the riparian area all the way down through Lake Powell. It is worth noting that the calculations of expected contaminant concentrations are probably incorrect in several important ways. First, the analysis assumes that the Green River will provide a diluting flow of 125,000 CFS, but the likelihood of a simultaneous historic flood from that completely separate drainage basin is vanishingly small. Second, the analysis does not say what diluting volume is used in the calculation for Lake Powell, but that reservoir is now holding just 8 million acre feet and may never be filled again now that the upper basin is beginning to appropriate its full share. Moreover, during the long regulatory timeframes, the reservoir will be filled with sediment and Glen Canyon Dam likely decommissioned. If the dilution calculation assumed anything like the reservoir's full 26 million acre foot volume, then it is in error.

Despite these conceptual and computational problems, the DEIS still paints a picture of disaster. The length of the river corridor all the way down past Lake Powell would be covered with radioactive wastes, with uranium and ammonia at levels 5-10 times the maximum protective criteria for aquatic species all the way to Lake Powell. As shown in Table 4-18, radium, which becomes the main contaminant of concern in pile failure scenarios, would be at levels of 515-2,060 pCi/g at the Green River, as compared to the 40 CFR 192 standards of 5-15 pCi/g. The DEIS completely fails to account for human health effects from the proposed St. George pipeline, which may soon withdraw 70,000 acre feet of drinking water from Lake Powell. Yet, without really examining what contaminants might reach human receptors in this river reach or downstream, the DEIS simply says, "A major tailings release is not anticipated to significantly increase risks to human populations downstream of Lake Powell" (DEIS page 4-56). This is simply not good enough as an analysis of the health risks of dumping millions of tons of toxins into the water supply for 26 million people. It also balances savings in the cost of remediation against potentially far larger costs to local and regional economies.

Such a flood and tailings failure would be, for a time, the main news story in the nation. The city of Moab would be evacuated. Unimaginable amounts would be spent on clean up of the city and the river corridor. As the Metropolitan Water District wrote in its letter to Dr. Kai Lee, Chair of the National Research Council on Long Term Institutional Management of DOE Legacy Waste Sites, the 26 million downstream consumers of

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Colorado River water buy bottled water if they perceive the safety of their tap water is threatened. If just one in 40 downstream users switched to bottled water after such an event it would cost the citizens of the Southwest $240 million dollars within a year. Another omission in the DEIS is the failure to consider the effect of a tailings failure on the recreational economy of southeast Utah. Visits to Moab, river trips and the use of Lake Powell would all be drastically curtailed, with impacts running to hundreds of millions of dollars. The DEIS does not analyze these outcomes, despite the fact that the economic consequences are about as large as the entire costs of the millsite reclamation. Though these economic issues have been repeatedly raised with both DOE and NRC before it, they have never been analyzed in a decision document.

Summary
The DEIS compares an onsite remediation with several offsite options, but the document attempts to minimize the stark differences between these options. Either the Klondike or Crescent Junction alternative would almost certainly result in long term isolation of the wastes from the human and natural environment without the need for significant maintenance.

Compared with the near ideal Klondike and Crescent Junction alternatives, the White Mesa alternative is an expensive, high tech boondoggle that will cause unacceptable impacts to the White Mesa Ute tribe and numerous sacred cultural sites, as well as along the length of the 85 mile pipeline or truck route. It offers no benefits except the questionable one of consolidating wastes at a site with numerous environmental drawbacks. DOE would be at a complete loss trying to explain how that alternative could be chosen as the preferred one, and we hope that we do not have to witness the attempt in the FEIS.

The DEIS examines the onsite alternative at great length despite the fact that is should be dropped from consideration. As a near unanimous chorus of elected officials and scientists has said, it is not acceptable to leave 12 million tons of mill wastes leaking into the Colorado River, directly in the path of a major flood. Every possible savings from capping in place is offset by a huge risk of tailings failure. Onsite reclamation simply shifts the well defined burden of cost from the federal government, where it belongs, to an unspecified but possibly much larger burden of health risks and costs for the population of the Southwest. On page 2-177 the DEIS says, "Human and ecological risks, long and short term environmental impacts have been fully developed and evaluated in this EIS." That will only be true if the eventual decision is to relocate the tailings. It is long past time to make the decision to remove these mill wastes from the bank of the river and the water supply for 26 million people.

Bill Hedden, Executive Director
Grand Canyon Trust

Michelle Harrington, Rivers Program Director
Center for Biological Diversity

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John Hornung, Executive Director
Forest Guardians

Tim Flood, Conservation Director
Friends of Arizona Rivers

Kelly Burke, Executive Director
Grand Canyon Wildlands Council

Veronica Egan, Executive Director
Great Old Broads for Wilderness

Elizabeth Brink, River Revival Coordinator
International Rivers Network

Robert Stack, Ph.D, Executive Director
Jumping Frog Research Institute

Andy Kerr, President
The Larch Company

Johanna Wald, Director, Land Program
Natural Resources Defense Council

Mark Salvo, Director
Sagebrush Sea Campaign

Sandy Bahr, Conservation Outreach Director
Sierra Club-Grand Canyon Chapter

Jane Feldman, Conservation Chair
Southern Nevada Group of the Sierra Club

Scott Groene, Executive Director
Southern Utah Wilderness Alliance

Jon Marvel, Executive Director
Western Watersheds Project

Marcia Hanscomb, Executive Director
Wetlands Action Network

Allison Jones, Conservation Biologist
The Wild Utah Project

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Cathy Thomas #555, p.17

From: bill hedden [whedden@citlink.net]
Sent: Wednesday, February 16, 2005 2:43 PM
To: moabcomments
Subject: additional groups signing on for Grand Canyon Trust

Dear Don,
Here are a couple extra groups that finally got back after we sent the Grand Canyon Trust's comments. Please add them to the signees. Many thanks, Bill Hedden

1. Dan Kent
   chairman
   Red Rock Forests
   90 W. Center St.

2. Michelle T. Harrington
   Rivers Program Director
   Center for Biological Diversity
   P.O. Box 39 629 Phoenix, AZ 85069

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Document #556 Hartsfield, Sam Port of Portland

From: Hartsfield, Sam [hartss@portptld.com]
Sent: Friday, February 18, 2005 10:22 AM
To: moabcomments
Subject: Comments on Draft EIS

Greetings!

This correspondence is in regard to The Draft Environmental Impact Statement for the Remediation of the Moab Uranium Mill Tailings, Grand and San Juan Counties, Utah. (DOE/EIS-0355D).

Below is my comment regarding the plan included in Appendix F to remove tamarisk from the floodplain between the existing Moab tailings pile and the Colorado River. I look forward to your response.

Thank you.

SAM HARTSFIELD

COMMENT:
Existing groundwater contamination at the Moab site is currently discharging into the Colorado River, resulting in impacts to surface water quality. Groundwater remediation is not expected to result in decreased levels of ammonia being discharged to the river for a minimum of 35 to 50 years after the active remediation activities have begun (Figure 4-7). The plan includes removing a stand of mature tamarisk trees that currently occupies the floodplain between the Moab tailings pile site and the Colorado River. Section F.2.1.3. states that the tamarisk currently removes a significant portion of the groundwater and the pollutants associated with it, thus resulting in a reduction of the total pollutants being discharged to the river. While I applaud the idea of removing a stand of invasive species, there are three reasons why these tamarisks should be left in place for the time being. First, removing these agents of phytoremediation before the active groundwater remediation begins to have a measurable effect will simply result in a higher concentration of ammonia and other pollutants in the river downstream of the Moab site in the interim. Even if other measures are in place, such as trenches or wells to intercept groundwater, the tamarisk will further decrease the amount of polluted water entering the river if they are left in place. Second, the plan suggests replacing the tamarisk with deep-rooted native species. Stream flow at this site has been altered due to upstream diversions, and the tamarisk has stabilized the bank such that this floodplain is now inundated less than once every 5 years. Unlike tamarisk, native riparian species such as *Populus spp* and *Salix spp* cannot thrive or even become established without regular inundation. Another option suggested in the plan is cultivating salt-tolerant crops. The plan states that the water table is generally at least 5 feet below the surface, whereas most crop plants have root systems that are too shallow to effectively remove significant quantities of groundwater from such depths. Third, even if it were possible to reestablish native plants in the floodplain, the process would likely require an active management strategy, given the generally unfavorable site conditions for the types of plants that would perform phytoremediation. No such strategy is suggested or even mentioned.

Please explain why it is necessary to remove the tamarisk early in the project rather than leaving it in place until groundwater ammonia concentrations have decreased substantially. Also, please provide more information on alternatives, such as a list of potentially cultivated crops and their transpiration rates and a restoration or management strategy for establishing native plants in the floodplain.

Sam Hartsfield
Environmental Specialist
Port of Portland
(503) 460 - 4523

Document #557 Members of Congress Congress of the United States

Congress of the United States

Washington, DC 20515

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February 17, 2005

Moab DEIS Comments
U.S. Department of Energy
Grand Junction 2597 B 3/4 Road
Grand Junction, CO 81503

RE: Moab Tailings DEIS

We are writing to voice our unified support for removing the uranium tailings pile from the Atlas Mill site to another location further from the banks of the Colorado River.

Currently, the tailings pile rests 10-15 feet above the water level of the Colorado River, a major water source for the millions of people who live downstream. The U.S. Geological Survey has recently stated that during a Probable Maximum Flood the Colorado River could feasibly climb 25 feet up the tailings pile, the channel could deepen and narrow, and water could move much more swiftly through the tailings site. Recent floods throughout the Southwestern United States are a clear demonstration of the path deviation that rivers can take and of the heavy water flows that can occur during extreme weather conditions. They also serve as a reminder that so-called floods are a reality that the Department of Energy must take into account when making the decision about the Atlas tailings pile.

Studies have found that the Colorado River has reached a flow level great enough to inundate the base of the Atlas tailings pile and leach contaminants like uranium, molybdenum, and nitrates into the river water on at least 26 occasions during the past 100 years. Additional studies have found that significant levels of contaminants are leaching into the Colorado River from the pile even when flooding is not present. The removal of the tailings pile from this site is necessary for the health and safety of the people living in Utah, Nevada, Arizona, California, and Mexico whose drinking water comes from the Colorado River.

We are particularly concerned that the Department of Energy's Draft Environmental Impact Statement for the Atlas Tailings site did not identify the removal of the tailings pile as a preferred alternative. A report by the National Academy of Sciences emphasized the risks posed by the location of the radioactive tailings next to the Colorado River, stating it was a "near certainty" that, left unchecked, the river would run across the Moab site at some point in the future. The Department of Energy has previously stated that the legislative history of UMTRCA stressed the importance of avoiding remedial action that would only be temporarily effective, and for every other site located in a floodplain the Department of Energy has chosen to remove the tailings. We believe that Congress is committed to the removal of this tailings pile, having passed legislation directing the removal of the pile and having appropriated funds toward the remediation of this site in Fiscal Years 2001, 2002, 2003, 2004, and 2005.

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As elected representatives, it is our responsibility to convey to the Department of Energy the hazards created by the continued presence of the tailings pile near the source of water for many of our constituents. We hope that you will work with us toward the removal of the Atlas Tailings pile, the only remaining tailings pile on the banks of the Colorado River.

Jim Matheson
Member of Congress

Chris Cannon
Member of Congress

Grace Napolitano
Member of Congress

David Dreier
Member of Congress

Lucille Roybal-Allard
Member of Congress

Bob Filner
Member of Congress

Shelley Berkley
Member of Congress

J.D. Hayworth
Member of Congress

Dennis Cardoza
Member of Congress

Susan Davis
Member of Congress

Mark Udall
Member of Congress

Henry Waxman
Member of Congress

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Juanita Millender-McDonald
Member of Congress

Rick Renzi
Member of Congress

George Miller
Member of Congress

Rob Bishop
Member of Congress

Joe Baca
Member of Congress

Linda Sanchez
Member of Congress

Raul Grijalva
Member of Congress

Jeff Flake
Member of Congress

Hilda Solis
Member of Congress

Document #558 Nielson, Dianne R. Utah Department of Environmental Quality

State of Utah

Department of
Environmental Quality

Dianne R. Nielson, Ph.D.
Executive Director

William J. Sinclair
Deputy Director

JON M. HUNTSMAN, JR.
Governor

GARY HERBERT
Lieutenant Governor

February 17, 2005

Don Metzler
Moab Federal Project Director
U.S. Department of Energy
2597 B ¾ Road
Grand Junction Colorado 81503

Dear Mr. Metzler:

RE: Moab Uranium Mill Tailings, Draft Environmental Impact Statement, DOE/EIS-0355D, State of Utah Comments

Please find enclosed detailed comments from the State of Utah regarding the above-referenced Draft Environmental Impact Statement (DEIS). These comments were referenced in Governor Huntsman's letter of February 15, 2005.

The enclosed comments from the Department of Environmental Quality (DEQ) focus on several issues that continue to support moving the pile. Among those concerns are: 1) the potential for the Colorado River to migrate and damage the tailings pile if it is left on the mill site; 2) the uncertainty of costs associated with long-term groundwater cleanup; 3) the acknowledgement by DOE that a second pulse of ammonia contamination will leach from the upper layers of the pile, if left in place; 4) the increased clean-up costs for groundwater in the future if the pile is not moved; and 5) use of the wrong ammonia surface water standard for a groundwater cleanup goal.

Calculations by DEQ included in the comments show that, with a continued need for 200 or more years of actual groundwater cleanup, beyond the assumed 200 years in the DEIS, the costs for the On-site Stabilization Alternative are comparable to the costs for moving the tailings to Klondike Flats. Based on those considerations, moving the pile is a cost-efficient solution, which also avoids the risk of river migration and possible undercutting of the pile. If the second pulse of ammonia contamination is considered, as discussed in the DEQ comments, an additional 440 years of active groundwater remediation could be necessary. Under that scenario, moving the tailings to Klondike Flats is less expensive.

168 North 1950 West • PO Box 144810 • Salt Lake City, UT 84114-4810 • phone (801) 536-4402 • fax (801) 536-0061
T.D.D. (801) 536-4414 • *www.deq.utah.gov*

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Referenced and included as part of DEQ's comments are two studies regarding river migration, potential erosion of the tailings, and hydrology of the systems:

Attachment 1 – U.S. Geological Survey, Scientific Investigations Report No. 2005-5022; Initial-Phase Investigation of Multi-Dimensional Streamflow Simulations in the Colorado River, Moab, Valley, Grand County, Utah, 2004, by Terry a. Kenney, dated February 11, 2005.

Attachment 2 – Investigation of the Hydrologic Connection Between the Moab Mill Tailings and the Matheson Wetland Preserve, by Philip Gardner and D. Kip Solomon, Department of Geology and Geophysics, University of Utah, dated December 11, 2003.

Also enclosed are two letters, both dated February 9, 2005, with comments from the Utah Division of Wildlife Resources and the Utah Division of Forestry, Fire and State Lands.

The time has come to move the pile off the banks of the Colorado River and transport it to a repository at Klondike Flats. Thank you for your ongoing stewardship responsibilities for the Moab Millsite and your consideration of the enclosed comments.

Best regards,

Dianne R. Nielson, Ph.D.
Executive Director

Enclosures

Utah DEQ Comments on

November, 2004 U.S. Department of Energy
Remediation of the Moab Uranium Mill Tailings, Grand and San Juan Counties, Utah
Draft Environmental Impact Statement

February 18, 2005

The Utah Department of Environmental Quality (DEQ) presents the following comments for DOE consideration regarding the proposed action.

Comments on DEIS Summary

1. Groundwater Remediation Costs / Timeframes (p. S-9) – should the pile be stabilized in place, the 75 – 80 year timeframe estimated by DOE for groundwater cleanup could be greatly under-exaggerated. The magnitude of this under-estimation could be great relative to the total on-site cleanup cost. Details about the factors behind this under-estimation are discussed below. Despite these problems, relocation of the tailings pile would eliminate the above-ground contaminant source term. Therefore, the shallow aquifer would passively clean itself over a period of time. As a result, any expense made now to relocate the pile could prevent dramatic long-term costs in the future.

2. Duration of Groundwater Remediation and Implications for Total Cleanup Costs (p. S-11) – we take exception to the DOE statement that "… duration of the action would likely be essentially the same regardless of whether the pile was remediated in place or relocated". Any truth in this statement is due only to DOE's arbitrary use of the acute ammonia-nitrogen standard (3.0 mg/l) as a groundwater cleanup goal. Should the lower chronic ammonia-nitrogen standard (0.6 mg/l) be required as a groundwater cleanup goal, the on-site option would require active ground water remediation for a much longer timeframe, perhaps more than 200 years (DEIS, Figure 2-43). This extended operation would greatly increase the total cost of the on-site stabilization option, in that 120 extra years of operation would cost on the order of $108,000,000. This would increase the total life-time cost of the on-site option from $248.8 Million to $356.8 Million.

   Even longer periods of active groundwater remediation may also be required. Unfortunately, the DOE contaminant transport model used to evaluate this need was limited to a 200 year simulation (DEIS Fig. 2-43). However, other DOE information indicates that the leaching effects of an ammonia salt layer found in the upper reaches of the tailings pile, will not be observed at the underlying water table for about 1,100 years. This same DOE information also suggests that after arrival of the second pulse of ammonia, it would take another 440 years for infiltration from the on-site cover system to eliminate it from the tailings pile (SOWP, p. 6-11 and 12). To date, DOE has not simulated this anticipated long-term ammonia transport (1,500 years). If these simulations were conducted it may show that over 640 years of active groundwater remediation would be required to adequately contain and control the ammonia discharge to the backwater habitats. If this were the case, the projected groundwater remediation costs could be as high as $576 Million (640 years x $900,000/year). This would increase the total cost of the project to well over $749 Million ($248.8 Million (DEIS Table 2-35) - $75.3 Million + $576 Million). In this case, an off-site remediation option would be more viable economically.

However, removal of the tailings pile would eliminate this possible complication and financial risk to the public.

3. Effects of River Migration on Floodplain and Wetlands (p. S-14) – we agree that the 100 and 500-year flood events could partially inundate the tailings pile, should it be stabilized in place. However, recent river velocity and shear force modeling performed by the USGS shows that erosion could easily occur on the right riverbank under both of these flow regimes (Kenney, Fig. 47 and 48, see Attachment 1, below). This same modeling shows how water velocities and shear forces under the 100-year flood event will be high enough inside the river's channel, across the entire length of the river in Moab Valley, to transport medium-sized (1.45-2.91 inch diameter) gravel (ibid., Fig. 47). Even larger particle sizes can be transported by higher river flow rates (ibid., Figs.48 and 49) , or under conditions where the river has scoured its channel near the West Portal (ibid., Figs. 50, 53, and 56).

   Given these recent USGS findings, it is easy to see how a 100-year flood event could easily erode the much finer silts and sands found in the riverbank near the tailings pile. It is also easy to conceive how under these conditions, the river could easily avulse its channel and rapidly undercut and destabilize part of the tailings pile. This de-stabilization could contaminate the floodplain and other downstream areas with residual radioactive material.

4. Long Term Effects on Aquatic Ecology (p. S-15) – based on the uncertainties involved in groundwater remediation costs, and the need to apply the chronic ammonia-nitrogen standard as the groundwater cleanup goal, the DOE statement at the top of this page that the adverse effects on aquatic ecology would be eliminated for 200 to 1,000 years would consequently dictate that the active groundwater remediation system be operated for at least 200 years (see discussion above). Under this scenario, the cost to the general public would be much larger than estimated by DOE. This adverse financial risk to the project must be considered in DOE's determination of a permanent solution for the site.

   Even larger periods of time may be required for active groundwater remediation under the on-site option. DOE has already mentioned concern for the effects that leaching of the ammonia salt layer found in the upper reaches of the tailings pile, would have on the underlying groundwater quality. As discussed above, DOE failed to evaluate this secondary pulse of ammonia that would arrive at the underlying water table at about 1,100 years after on-site cover construction. Because it may take about 440 years to eliminate this pulse of leachate from the tailings system, the DOE contaminant transport models should have been run for at least 1,500 years. Should this secondary pulse of ammonia cause the groundwater to exceed the chronic cleanup goal (0.6 mg/l), it may be necessary to actively treat groundwater under the on-site option for 640 years or more. This would result in a tremendous increase in the on-site groundwater remediation costs, from about $75.3 Million (DEIS, Table 2-35) to $576 Million, and thereby increase the total on-site cleanup cost from $248.8 Million to $749.5 Million ($248.8 Million – $75.3 Million + $576 Million).

5. Waste Management: Evaporation Residue from Groundwater Remediation (p. S-20) – we take exception with the statement that this residue would only need to be managed for 75-80 years. As discussed above, the time it takes to cleanup the local groundwater could be as high as 200 years or more. Any such increase in the required time would bring with it additional costs for residue disposal. However, removal of the pile would eliminate this risk in the estimated cleanup costs.

6. Consequences of Uncertainty: Omission of River Migration Effects (p. S-34) – the description in this section omits the most significant category of uncertainty for the project; that being pile de-stabilization by river migration. These consequences must clearly be described in the DEIS. DEQ's concerns with river migration are discussed in detail below.

7. Consequences of Uncertainty: Groundwater Model Calibration (p. S-35) – the need to calibrate and refine the groundwater model to predict future ground and surface water concentrations is largely academic if the pile is relocated. Existing DOE contaminant transport models show how removal of the pile will allow the nearby groundwater to regain the chronic ammonia-nitrogen standard (0.6 mg/l) under passive groundwater flow conditions within 90 years (DEIS, Figs. 2-43 and 4-7).

8. Table S-1: Consequences of Uncertainty (pp. 3-36 thru 45) – we have many concerns with DOE statements made in this table, as follows:

   A. Ground Water and Site Conceptual Model Assumptions: Omission of Dispute Over Groundwater Cleanup Goal (p. S-36) – the discussion in this paragraph omits any mention of the dispute with Utah DEQ over the applicable groundwater quality cleanup goal for ammonia nitrogen or any other tailings contaminant. In the case of ammonia, DEQ has stated on more than one occasion that the cleanup goal should be the chronic standard, 0.6 mg/l, and not the acute criteria (3.0 mg/l). Detailed rationale for this State determination is provided below. Should the 0.6 mg/l standard be applied, the existing DOE contaminant transport model shows that it would take over 200 years for groundwater near the pile to reach this value (DEIS, Figs. 2-43 and 4-1). As mentioned elsewhere in this document, this case would represent at least 120 extra years of groundwater remediation costs, over and above those predicted by DOE. At an annual operation cost of about $900,000, this represents an increase in the total project cost of more than $108,000,000. In comparison this amount is 65% of the total on-site reclamation cost estimated by DOE ($166,000,000), and certainly needs to be factored into the DEIS decision. On the other hand removal of the pile would forego these possible expenditures for the public.

   B. Surface Water Compliance Standards – Need to Apply Chronic Ammonia Standard (p. S-37) – there is no doubt that DOE's position is in error. The acute ammonia standard (3.0 mg/l) does not apply to the backwater habitat in questions for several reasons, including (for additional details see discussion below regarding DEIS Section 2.3.1.2):

      1) Mixing Zone Premise: Lack of Turbulent Flow – acute standards are applied to surface water quality problems under the assumption that 1) open channel turbulence will provide for a mixing zone to dilute or otherwise reduce the contaminant concentrations from a point source discharge, and 2) the mixing zone will be limited in its dimensions relative to the river's channel, i.e., less wide than the river channel and limited in longitudinal length (see Utah Water Quality Rules, UAC R317-2-5). However, the backwater areas in question only access the river channel at the habitat's downstream end. Hence, there is no open channel turbulence inside the backwater area. Instead, the backwater areas are recharged by infiltrating groundwater from the bank, or by river water infiltrating thru the barrier sand bar. Both of these sources of recharge constitute laminar flow and not turbulent conditions. Hence the acute standard is not applicable to an environment where water flow is largely laminar.

2) Avoidance Behavior Assumption – another critical assumption in the application of acute standards to surface water quality problems is that adult fish can avoid the toxicity of the mixing zone by swimming around it (avoidance behavior). However in the case of the backwater areas in questions, larval fish that will be deposited there by the currents do not have the capability to resist moving water. Consequently, they cannot exhibit any avoidance behavior. Given these circumstances only the chronic standard is appropriate, 0.6 mg/l.

3) Exposure Time – the acute standards are designed for a 1-hour exposure to the fish (see Utah Water Quality Rules, UAC R317-6-2, Table 2.14.2). In contrast the chronic standard is designed for a 4-hour exposure period (ibid.). In the case of the backwater areas, the habitat will serve as a nursery for the larval fish in question. Consequently, they will reside there for weeks if not months. As a result, only the chronic standard , 0.6 mg/l, is applicable.

For these reasons, the chronic ammonia-nitrogen standard must be applied to the backwater habitats in question.

We understand that water quality monitoring of these backwater areas is challenging, largely due to their transient nature; and that therefore it is preferred to monitor groundwater quality as a means of verifying compliance. We have also concluded that DOE evaluation of the transfer mechanism between groundwater and the backwater areas is incomplete. Errors have also been found in DOE's claim for a 10-fold groundwater to surface water dilution factor. These errors are discussed in detail below.

Until these errors are resolved, and without confirmation on how dilution, dispersion, retardation, or biologic decay will reduce the ammonia concentrations during this groundwater to surface water transition, it is conservative and protective of the environment to apply the chronic (0.6 mg/l) standard as a groundwater cleanup goal.

The application of the chronic ammonia-nitrogen standard, 0.6mg/l, as a groundwater cleanup criteria significantly increases the cost of the total project remediation by $108,000,000 (120 years x $900,000/yr). This additional cost needs to be factored into the total price for the onsite stabilization option. However, these costs could be eliminated from consideration if the pile were moved to another location away from the river.

C. River Migration - Need to Move the Tailings (p. S-41) – we strongly contend with the DOE statement in this section that "…river migration toward the pile would not occur as a catastrophic event but rather gradually in small increments." River channel avulsion is a time dynamic process that can occur very rapidly. History across the world shows river avulsion can be rapid and dramatic. Recent events on the Santa Clara River drainage in southwest Utah also reinforce this conclusion, where over 25 homes were destroyed in a matter of a few hours during a 100+ year flood event.

We also strongly disagree with DOE's preliminary evaluation of costs for the riprap wall planned for construction somewhere between the pile and right river bank, in that it was based on outdated 1-dimensional water velocity and shear force model (1994 Mussetter Engineering Report). More robust 2-dimensional river velocity and shear force modeling has been conducted recently by the USGS, which shows (see Kenney, Figs. 47-49, in Attachment 1, below):

1) Significantly higher river velocities and shear forces will exist in the river's channel and on the right river bank during 100-year and larger flood events, than previously predicted,
2) That these newly predicted forces are large enough to erode medium-sized (1.45-2.91 inch diameter) gravel materials, which are significantly coarser than the fine sands and silts found on the riverbank and adjacent to and under the tailings pile today,
3) Even larger particle sizes can be transported by the river, should the channel be scoured near the West Portal area during a flood event (ibid., Figs. 50, 53, and 56),
4) The physical extent of the erosion prone zones on the right riverbank extend for thousands of feet between the east and west portals to Moab valley; resulting in the need for any riprap wall to be tremendously long and costly both in terms of construction, and long term maintenance.

A copy of this USGS report is included herewith as a formal part of the DEQ comments (see Attachment 1, below).

It is also important to note that the USGS hydrologic modeling is also consistent with geologic evidence found downstream of Moab Valley near Kings Bottom (about 2 miles downstream of the West Portal) where coarse deposits of river terrace gravels are found (Doelling, et.al., p.11 and Plate 1). These geologic deposits attest to fact that the river has experienced extreme velocities in the past that are certainly capable of eroding the fine soils adjacent to and under the tailings pile. Such de-stabilization is a critical failure scenario that must be examined and resolved.

D. Shallow Ground Water Discharge/Matheson Wetlands Preserve (p. S-42) – we agree that at the upper limit of uncertainty that perpetual groundwater remediation may be required for the on-site disposal option. Based on the above discussion, this section should revised to reflect the 120 extra years of active groundwater treatment that the chronic ammonia-nitrogen standard will require. This would result in an increase of more than $108,000,000 in the groundwater management costs for the on-site option.

E. Other Contaminants of Concern (p. S-43) – we also agree that this uncertainty could result in extremely long timeframes to complete groundwater remediation under the on-site stabilization option. To frame the financial impact of this uncertainty the DOE should provide a range of costs that could occur in the event this problem occurs. Certainly, these costs could be compounded on top of the $108,000,000 mentioned above. Even greater costs could accumulate for the on-site option in terms of active groundwater remediation if it is shown that the secondary ammonia pulse, described above, also has to be contained and treated for an additional 440 years.

F. Limited-use Aquifer (p. S-44) – we agree that groundwater cleanup at this site should focus on protection of the nearby backwater habitat in the Colorado River. However, we take exception to the DOE statement that "Active ground water cleanup beyond what is currently projected is not likely to be required for the protection of aquatic species." Based on above DEQ comments, it is premature to reach this conclusion in that: 1) the chronic ammonia-nitrogen standard (0.6 mg/l) is applicable to the backwater habitat and not the acute standard (3.0 mg/l), and 2) DOE's arguments about the assumed 10-fold groundwater to surface water dilution factor have been found to contain errors. Lacking this evidence to demonstrate how a higher groundwater concentration would allow the

backwater to meet the chronic standard (0.6 mg/l), DOE must apply the chronic standard as the groundwater cleanup goal.

G. Salt Layer Migration – Need to Remodel Contaminant Transport (p. S-45) – the discussion here fails to describe the implications for the ammonia salt layer in the tailings on the DOE contaminant transport model, which was used to justify the 75-80 year groundwater cleanup estimates. Review of the DOE SOWP (pp. 6-11 and 12, and 7-23) show that DOE's contaminant transport model assumed a constant tailings pore fluid ammonia concentration (1,100 mg/l). However, by DOE's own estimates, an ammonia salt layer near the top of the tailings pile will solubilize and be transferred to the water table by infiltration seepage thru the on-site cover system. In turn, this seepage will then cause a 16-fold increase in the ammonia concentrations that arrive at the water table (dissolved ammonia-nitrogen = 18,000 mg/l). Unfortunately, this step function increase in the source term concentration was not simulated in the DOE contaminant transport model (DOE SOWP, p. 7-23). Hence, the model did not represent actual field conditions anticipated.

Using DOE's estimates, this step increase in the ammonia source term concentration would arrive at the water table about 1,094 years after cover construction (SOWP, pp. 6-11 and 12 and Fig. 6-3). This means that the ammonia break-thru curve in the DEIS (Fig. 2-43), does not represent the long-term performance of the on-site option, in that the ammonia loading on the water table will increase at about year 1,094, and shortly thereafter could cause a spike increase in the predicted groundwater and backwater habitat concentrations. Further, these same DOE estimates also show it would take about 440 years for the cover system infiltration to leach out the ammonia salt layer (DOE SOWP, p. 6-11). As a result, the DOE model should have simulated tailings pile infiltration and contaminant transport for a minimum of at least 1,500 years. Instead, the DOE model only simulated 200 years of system performance (DEIS, Fig. 2-43 and SOWP, p. 7-30 and Fig. 7-17).

As a result of these findings it is clear that DOE's contaminant transport predictions are prejudiced and biased; leaving DOE's claim unsupported, i.e., that only 75-80 years of active groundwater remediation are required. In reality, additional contaminant transport modeling is required to evaluate actual field performance of the on-site remediation option thru a time span of at least 1,500 years. Given these circumstances, it is reasonable to expect that new contaminant transport modeling would show that the on-site option would allow groundwater to:

1) Achieve the 0.6 mg/l chronic ammonia-nitrogen standard during the first 200 years, only to be exceeded again at about 1,100 years when the ammonia salt layer pulse reaches the water table, and

2) Thereafter it could take as long as 440 years for this ammonia pulse to be dissipated from the groundwater system, as the ammonia salt layer in the tailings pile was leached out.

Under this scenario, active groundwater remediation would be required not for 80 years, or 200 years, but for possibly 640 years. As a consequence, the total cost for active groundwater remediation would be $576 Million (640 years x $900,000/yr), and total remediation cost for the entire on-site stabilization project would then be $749.5 Million [$248.8 Million (see DOE DEIS Table 2-35) – $75.3 Million (80 years of active

groundwater cleanup) + $576 Million (640 years of active groundwater remediation)]. Under these circumstances relocation would be a much more attractive option.

Some may argue that evaluation of a 1,500 year timeframe is excessively long, given that the EPA regulations for Title I projects only require a 200 – 1,000 year evaluation (40 CFR 192.02). However, the National Academy of Science (NAS) already ruled on this issue, as follows (6/11/02 National Academy of Science, Board on Radioactive Waste Management Report to DOE, p. 3):

> *"II DOE's decision-making process should recognize the connections and potential tradeoffs between short- and long-term actions.*
>
> *The committee suggests that the ultimate objective at the Moab Site should be to implement remediation and management measures that have the best reasonably achievable probability of being protective of human health and the environment* ***for the duration of the hazard****, taking into account relevant economic and societal factors. Federal regulations (40 CFR 192) adopt 1000 years as the design objective for the maintenance of human isolation of mill tailings from the environment. The regulations require that this objective be met "to the extent reasonably achievable," and set a lower bound for control of "at least" 200 years. These are ambitious goals, even though they fall far short of the full duration of the hazard.*
>
> *Lower levels of remediation in the near term typically leave greater residual long-term hazards, which may increase the need for, the importance of, and the costs of long-term actions.* ***The committee recommends that DOE assess each alternative for disposition of the Moab pile on the basis of its entire life-cycle****, including the demands for long-term institutional management (LTIM) actions, where LTIM comprises the total system of protection, including contaminant reduction, contaminant isolation, and long-term stewardship. Thus, such an assessment would specifically include consideration of the residual risk when the near-term remediation actions at the site are complete, the LTIM measures required, the likely duration of these measures, the consequences of the failures of such measures, and the total social costs expended. DOE should consider all of these factors in establishing the balance between near-term cleanup and long-term measures, as well as in designing the LTIM measures, themselves.* ***Long-term considerations*** *do not necessarily outweigh short-term concerns (e.g., cost and remediation risk), but they* ***should be identified, evaluated, and any tradeoffs explicitly identified*** *and considered as part of the decision."* (emphasis added)

Based on this NAS guidance, DOE should have completed the contaminant transport analysis for a period of at least 1,500 years. Since this was not done, the DOE contaminant transport analysis failed to evaluate the problem for the "… full duration of the hazard." Further, the DOE evaluation also failed to fully assess the "… long-term considerations … and any tradeoffs explicitly identified … as a part of the decision."

However, should DOE decide to move the tailings to a new disposal site away from the river, this issue would be mute.

9. Major Conclusions: Comparable Groundwater Remediation Costs (p. S-47) - we strongly disagree with the DOE conclusion that the groundwater remediation duration and costs would be identical regardless the tailings cleanup option selected. As discussed above the

apparent comparability is an artifact of the arbitrary groundwater cleanup standard selected by DOE (3.0 mg/l acute ammonia nitrogen). Application of the more appropriate chronic ammonia-nitrogen standard, 0.6.mg/l, as a groundwater cleanup criteria could result in an increase of 120 years of additional groundwater treatment, with an associated cost of about $108,000,000. Further, contaminant transport evaluation of the secondary ammonia pulse from leaching of the ammonia salt layer in the upper reaches of the tailings pile could also dramatically increase the costs for active groundwater remediation for the on-site option, by as much as $576 Million more. These two factors combined would dramatically alter DOE's conclusion, and the on-site stabilization option would become significantly more expensive than any of the off-site alternatives.

10. Areas of Controversy (p. S-48) – more that one concern exists regarding DOE statements made here, including:

    A. Ground Water Remediation Standard Applied – here the DOE states that "USFWS agrees with DOE that the target goals that DOE has selected would be protective of aquatic species in the Colorado River". However, what was not said, is that this agreement is conditioned upon unsubstantiated affirmations from DOE that the proposed groundwater cleanup goal (3.0 mg/l ammonia-nitrogen) will allow backwater habitat water quality conditions to meet the 0.6 mg/l chronic ammonia nitrogen standard. The fact that DOE's contaminant transport model failed to analyze the secondary ammonia pulse that will result from leaching of the ammonia salt layer in the upper portion of the tailings pile further detracts from any confidence in the DOE's claims that the backwater areas will achieve the 0.6 mg/l chronic ammonia standard.

    Further, DOE has not completed any technical studies to confirm if its dilution factor claim can actually be met in the backwater habitat. Additional discussion follows below that explains why DOE's assumptions on this issue are weak and without merit.

    Recently we have become aware that the USFWS will stipulate conditions in its upcoming Biologic Opinion to require DOE to positively demonstrate that the groundwater remediation system will allow water quality conditions in the backwater area to meet the 0.6 mg/l chronic ammonia-nitrogen standard (personal communication, Henry Maddux, USFWS, SLC).

    Until a verifiable technical demonstration is made, uncertainty exists that DOE can successfully meet the required water quality conditions and prevent takings of endangered fish with the on-site stabilization option. Should DOE be unable to successfully complete this demonstration, the possibility exists that the time required for groundwater remediation will increase by more than 120 years. Under these circumstances a dramatic difference will exist between the on and off-site remediation options, and it could take more than 200 years of active groundwater remediation to cleanup the habitat, should the pile remain where it is. This would result in an increased cost to the total remediation project of more than $108,000,000. Comparatively, this value is more than 65% of the total cost for the on-site stabilization option, and therefore deserves significant evaluation and study.

    However, this issue is mute should DOE select eliminate the contaminant source term by relocating the tailings pile.

    B. River Migration – this controversy is more than a professional difference of opinion. The NAS has already established how critical this issue is to the fate of this site and protection

of nearby natural resources, as follows (6/11/02 National Academy of Science, Board on Radioactive Waste Management Report to DOE, pp.3-4):

> *"III. DOE should critically examine important assumptions and conclusions in its analyses of the two primary alternatives, examine the likelihood that they might be invalid over the relevant time frames, and reassess the risks in this new light.*
>
> *The future risks from the stabilize-in-place alternative will depend on the long-term stability of the pile, the durability of the cover system, the longevity of society's memory regarding hazards at the site, the distribution and extent of contamination in the subsurface, the ability of engineered barriers to protect against movement of the course of the Colorado River toward the pile, and the persistence of organizational capabilities to respond to failures in the pile's integrity. In the current analysis, these issues are addressed by generally assuming that all engineered and natural systems will work as expected and that institutional memory will endure. The potential for these assumptions to be wrong, and the consequences if they are, need to be considered in more detail. These matters are discussed in Section V of the body of the committee's report.*
>
> *An example of an important assumption that should be reviewed at the Moab Site is DOE's acceptance of the U.S. NRC's finding that the risks that the Colorado River will intercept and carry away a portion of the mill-tailings pile are small and that this eventuality can be addressed by engineered measures.* ***In contrast, it is the committee's view that it cannot be assumed that the course of the Colorado River will remain in its current position over the next 1000 (or more) years****. While one cannot predict the timing of river migration (over the coming millennia or in the next several decades),* ***the committee sees it as a near certainty that the river's course will run across the Moab Site at some time in the future, unless engineered barriers prevent it from doing so****. In addition to appropriate consideration of the probability that the river will change course, the consequences if such an event were to occur have been examined only superficially. Accordingly, DOE should assess the risks—both probabilities and consequences—associated with river-pile interactions over time. If the stabilize-in-place option is selected, explicit consideration of this failure scenario is necessary, and the risks may warrant a plan for dealing with such failures."* (emphasis added)

After review of these NAS guidelines it is apparent that DOE made no effort to critically examine the previous Atlas and NRC position that river migration was of no consequence to the project. To this end, Utah DEQ and the Environmental Protection Agency (EPA) commissioned the USGS to conduct new river water velocity and shear force modeling to better assess the erosive forces that could interact with the tailings pile. This new study also provided an opportunity for a more robust, 2 and quasi-3-dimensional analysis of erosion potential; which represents a dramatic improvement over the simplistic and antiquated 1-dimensional model used previously by Atlas (1994 Mussetter Engineering Report).

In light of the NAS charge above, the need for an independent evaluation is clear in that the simplistic 1-dimensional model was performed for a client who had a conflict of interest to see the pile remain in place. Certainly due diligence and professional responsibility would indicate that an independent evaluation of the former model (1994 Mussetter Engineering Report) is in order. To do otherwise would be irresponsible.

The need for this new evaluation was obvious, in that channel avulsion and river migration is a time dynamic process that can be rapid and dramatic, especially for a large river system like the Colorado River. Recent flooding on the Santa Clara River branch of the Colorado River drainage is direct evidence of this possibility, where more than 25 homes were destroyed in a few hours. DOE's claims to the contrary – that river migration is a slow and passive process - are in direct contradiction with the knowledge and experience of common citizens who live near large rivers. Common sense tells us that periodic, long term monitoring and mitigation cannot guarantee that a catastrophic flood event won't erode and destabilize the pile in the future.

The new USGS hydrologic modeling has independently verified the river's potential to erode the right river bank. This new work is based on local topographic information provided in part by DOE, detailed site specific measurements of river channel bathymetry, and robust 2-dimensional river water velocity and shear stress simulations under 100 year and higher river flow rates (Kenney, Figs. 47-49, see Attachment 1, below). This new USGS modeling shows how the river can transport medium-sized (1.45-2.91 inch diameter) gravel at water velocities and shear forces found in the river's channel during 100-year flood conditions (Kenney, Fig. 47). Even larger sized sediment can be carried under higher river flow conditions (ibid., Figs. 48-49), or if channel scouring were to occur near the West Portal (ibid., Figs 50, 53, and 56). Certainly it is clear that if the Colorado River can transport sediments of this size, it could easily erode the fine silts and sands found on the riverbank and under the tailings pile. A copy of the USGS modeling report is included herewith as a part of DEQ's comments on the DEIS, see Attachment 1, below.

Furthermore, the recent USGS modeling is consistent with nearby geologic evidence. Large deposits of river terrace gravels are found near Kings Bottom, about 2 miles downstream of the West Portal. These deposits are geologic evidence that the Colorado River has experienced high water velocity, shear force, and erosive power in the geologic past (Doelling, et.al., p. 11 and Plate 1). Therefore, it is evident that the river's potential to erode the riverbank and undermine the tailings pile is real, and must be accounted for and resolved in DOE's decision-making process for determination of the pile's ultimate fate.

Comments on DEIS Volume 1

Chapter 1: Introduction

11. Section 1.4.1: On-Site Disposal Alternative (p. 1-7) – based on recent USGS river velocity and shear force modeling, flood protection will be required not only at the base of the tailings pile, but along extensive segments of the right river bank in Moab Valley. This same modeling shows significant erosive conditions will exist during a 100-year flood event across long areas adjacent to the mill site (Kenney, Fig. 47). As a result, should the DOE stabilize the pile in place, these vulnerable river bank areas will require extensive riprap protection to prevent the existing channel from migrating and undermining the tailings embankment. This will likely require a riprap wall that is 1,000's of feet long. Long-term maintenance of such a long erosion barrier would also be significant project cost. However, relocation of the tailings would eliminate the need for such costly erosion protection.

12. Section 1.4.3: Groundwater Remediation (pp. 1-9 and 10) – the Utah DEQ has several concerns with this section of the Draft Environmental Impact Statement (DEIS), as follows:

    A. Failure to Recognize State Jurisdiction for Groundwater – we agree with DOE's previous statements that Residual Radioactive Material (RRM) at Title I facilities is not defined as a contaminant under the Federal Clean Water Act or the EPA National Pollutant Discharge Elimination System (NPDES program), and is therefore not subject to this jurisdiction (3/17/04 DOE Responses, Chapter 2, Comment 40). However, this federal law and regulation apply only to navigable waters of the United States. Conversely, groundwater appropriations and quality issues are the jurisdiction of the States. Consequently, the State of Utah has authority over sources of groundwater pollution. Using this State authority, the Utah Department of Environmental Quality (DEQ) has classified the shallow aquifer at the Moab Tailings site as a Class IC aquifer, that needs protection in order to sustain a nearby wildlife habitat, that being the backwater area which is fed by groundwater on the nearby banks of the Colorado River. The DOE needs to recognize the State's authority and partner with DEQ to find a solution to protect the nearby water resources. Cooperation to find a solution to this problem, will avoid the need for escalated State action.

    B. High Uncertainty for Cost Estimates for Remediation – the time span estimated for cleanup of the polluted groundwater on the Moab Tailings site is highly uncertain. The DOE's conceptual model for the groundwater has only focused on shallow contamination. Little is known about the local groundwater – surface water interaction. Further, the DOE presentation does not acknowledge deep groundwater contamination created by high driving heads during historic operation of the tailings pile. Research on freshwater equivalent head done by the University of Utah has shown that it is possible for this deep contamination from the tailings pile to travel under the river (Gardner and Solomon, pp.14-15 and Fig. 7). The ultimate fate of this deep contamination is not known, nor have the potential receptors of this deep pollution been identified.

    Geochemical evidence regarding Oxygen-18 / Oxygen-16 ratios ($\delta^{18}O$) in groundwater on both sides of the river has also been presented to DOE by the University of Utah (Gardner and Solomon, pp. 18-20, Table 5 and Figs. 15 and 16). This evidence also shows how certain wells found in the Matheson Preserve have a $\delta^{18}O$ signature that is indicative of the lower elevation recharge from the Glen Canyon Group found in DOE wells near the tailings pile. As a result of these University findings it is clear that the Colorado River does not form the hydraulic barrier that it was once thought to be, and that deep groundwater from the DOE site can travel under the river and affect the Matheson Preserve. To date, DOE has refused to recognize these important data. Such uncertainty in the local groundwater – surface water relationship suggests the site is complex and not yet well defined hydrologically. Lacking a complete characterization of the local hydraulics, one can only conclude that the total cost and time span estimated by DOE for groundwater remediation are highly speculative, and deserve further study and determination.

Chapter 2: Description of Proposed Alternate Actions

13. Section 2.0: Groundwater Remediation paragraph (p. 2-4) – we agree that interception of the contaminated groundwater is essential to prevention of it polluting nearby surface water. However, the current remediation system discharges its contaminants back to the top of the

tailings pile. Thereby simply relocating the contaminant source term to an upstream location where it can be leached again and returned to the aquifer for renewed or repeated groundwater contamination. This "closed loop" system would appear to have the potential to exacerbate the ammonia salt layer problem and the secondary ammonia leachate pulse described above. Any long term remediation solution must break this "closed" loop approach and remove and prevent the contamination from being re-introduced into the shallow aquifer.

14. Section 2.1.1.2: Contaminated Soil, Vegetation, and Debris (p. 2-11) – prior to actual cleanup of site soils, please coordinate determination of background radium-226 concentrations with DEQ.

15. Section 2.1.1.4: Site Reclamation – Need for Longer Riprap Wall (p. 2-14) – as discussed above, the recent USGS river velocity and shear force modeling indicates a 100-year flood will cause widespread erosion of the riverbank in Moab Valley (Kenney, Fig. 47). Higher river flows and/or channel scour near the West Portal will only increase the potential for this erosion (ibid., Figs. 48-49, and 50, 53, and 56, respectively). Consequently, the riprap wall proposed in Fig. 2-3 will have to be greatly increased in length and rock diameter to protect the tailings pile from future erosion. This would add significantly to the project cost. However, relocation of the pile would make mute the need for more robust riprap protection.

16. Section 2.1.3.1: Borrow Material Standards and Requirements (pp.2-19 thru 22) – recent river velocity and shear force modeling by the USGS shows that under the possible maximum flood conditions (Q_{pmf}) that the tailings pile would be inundated to a depth of 25 feet above the toe of the pile (Kenney, Figs. 16 and 19). This same modeling also illustrated how the southeast corner of the pile would provide a restriction to river flow that would significantly increase water velocity and generate back-eddies next to the pile and across the mill site (ibid., Figs. 32 and 33). Consequently, if the pile is left in place, significant quantities of very large diameter riprap will be required along vast areas of the east and south facing sideslopes. Further, this protective blanket will need to extend vertically more than 25 feet above the toe of the tailings pile. The size of the riprap required and the quantity of the available borrow sources needs to be carefully evaluated in light of these performance requirements. However, should the pile be moved away from the Colorado River, this cover design specification need not be as rigorous, and would be much less costly to construct.

17. Section 2.1.4: Monitoring and Maintenance (p. 2-24) – with regards to riprap protection, we take exception with the statement that "… if an erosion problem were observed, the eroded area would be remedied by re-filling the area." The erosive power of the Colorado River is significant. As demonstrated by the USGS river velocity and shear force modeling, large areas of the right riverbank are vulnerable even during 100-year flood events (Kenney, Fig. 47). Several events of this magnitude should be expected in the DOE design analysis, which is required to consider a 200 – 1,000 year period. Larger flood events and channel scour near the West Portal would only exacerbate the erosive power of the river (ibid., Figs. 48-49, and 50, 53, and 56, respectively).

    In addition, DOE has overlooked how river channel avulsion is a rapid and catastrophic process that can drastically change channel location and geometry during acute runoff. Under these circumstances it may not be feasible or possible to re-fill these areas in a timely manner to control acute erosion. However, this issue becomes mute if the pile was relocated.

18. Section 2.2.5.1: Reference Disposal Cell (p. 2-77) – DOE should ensure the design of the topslope soil / rock admixture and the sideslope riprap layers are easily constructible. Following NRC guidance, the thickness of such layers should be at least 2-times the average particle diameter (D_{50}).

19. Section 2.2.5.2: White Mesa Mill Disposal Cell and Figures 2-36 and 37 (pp. 2-78 thru 81) – several issues need to be addressed for this option, including:

    A. State Regulatory Position: Groundwater Protection – Utah DEQ is an Agreement State under the U.S. Nuclear Regulatory Commission (NRC) 11e.(2) program for regulating uranium mills. Utah's uranium mill regulations, found in UAC R313-24-4(1)(b) require the mills to comply with the State Ground Water Protection Rules (UAC R317-6). By this means, uranium mill operators are required to comply with State requirements for groundwater quality protection.

    B. BAT Design Standards, Dry and Wet Cells - it is presumptive that only a clay liner would be necessary under the "dry" tailings disposal cell at the International Uranium Corporation (IUC) at White Mesa. Under the Utah Ground Water Quality Protection Regulations (UAC R317-6-1.25) this new disposal cell would be an new facility, and thus subject to the requirements of Best Available Technology (BAT) under these State rules [UAC R317-6-6.4(A)]. This would likely require double flexible membrane liners (FML) and leak detection, and thus greatly increase the cost of the project. Because the proposed cover design is integrated with other upgradient disposal cells, the "dry" cell cover system would also have to be carefully examined in this permitting process to ensure it met the performance standards already established in the facility's Ground Water Quality Discharge permit.

       The same is also true of the "wet" cell proposed, in that a single FML also fails to meet the BAT design requirement for liner systems. Again, because a FML is used in the under-liner system, a FML will also be required in the cover system to meet State BAT design requirements. These changes will increase the cost of the White Mesa disposal option.

    C. Radioactive Materials License Amendment Required - because Utah is now an Agreement State under the NRC Title II program, IUC would also have to amend its Radioactive Materials License to accommodate this disposal option at White Mesa. Said action would be in addition to the issuance of a State Construction Permit and modification of the existing Ground Water Quality Discharge Permit for the facility.

    D. Complication for Proposed Dry Cell Location – the currently proposed design locates the "dry" cell in an area where elevated uranium concentrations are known to exist in the shallow aquifer that exceed the State Ground Water Quality Standards (GWQS). These exceedances are found in three wells immediately adjacent to and downgradient of existing Tailings Cell 4A, and have exhibited a steadily increasing concentration trend for many years (DRC Statement of Basis, pp. 6 and 7). As a result, the exceedances are the subject of further study in an upcoming report required by the State Ground Water Quality Discharge Permit (ibid.). If these exceedances were to be determined to be the result of leakage from the IUC facility, groundwater remediation would be required in this area. That would be very difficult to do should the "dry" cell be constructed where it is proposed. Discrete groundwater monitoring of the new "dry" cell would also be complicated by the presence of such a plume. Therefore, the exact location of the "dry"

cell should not be selected until completion of the referenced report, and a determination by DEQ as to the cause of the anomalous uranium concentrations.

20. Section 2.3.1.1: EPA Ground Water Standards – Omission of State Authority for Groundwater Protection – previously we have raised the issue of State authority for water quality protection (2/3/04 DEQ comments on Preliminary DEIS, Chp. 2, Comment 40). In response to this issue DOE took the position that Residual Radioactive Material (RRM) was not defined as a "pollutant" under the Clean Water Act (3/18/04 DOE response), and therefore the State had no jurisdiction over surface water quality issues at the Moab Tailings site. Further, DOE argued that the Moab Tailings pile was not a point source discharge, and therefore did not require a permit under the EPA National Pollutant Discharge Elimination System program, of which Utah is a Primacy State. We agree with DOE's arguments about the definition of "pollutant" and a point source. However, we remind DOE that the Clean Water Act is applicable only to navigable waters of the United States. As a result, federal law has left regulation of groundwater resources to the jurisdiction of the States. Under this premise, Utah has developed it own regulations for groundwater quality protection (UAC R317-6). These rules do apply to the Moab Tailings site.

    This said, we agree in concept with DOE's goal that the groundwater cleanup must be designed to protect the nearby backwater habitat. To this end, we have determined that the shallow aquifer below the Moab Tailings site is a Class IC aquifer, that must be protected as a source of water for wildlife habitat (UAC R317-6-4.4). Discussion found below elaborates our position regarding what groundwater cleanup standard is applicable to this end. DOE's cooperation with State authority in the matter will eliminate the need for escalated action.

21. Section 2.3.1.2: Contaminants of Potential Concern (p. 2-92) – we have several concerns with DOE statements in this section, as follows:

    A. Contaminant K_d Assumption - we agree that ammonia-nitrogen [NH_3(N)] is a significant contaminant at the Moab Tailings site. However, DOE's focus on only NH_3(N) in its planning of the groundwater remediation system assumes that all other contaminants of concern have the same soil-water partitioning coefficient (K_d) as NH_3(N). We understand that this was done to facilitate scoping-level decisions. However, should this geochemical assumption be found in error, the cost for groundwater remediation and surface water protection could escalate greatly.

    B. DOE Errors in Surface Water Point of Compliance Concepts and Policy – several errors were made in this DOE discussion regarding State policy and requirements for surface water quality compliance, contaminant mixing zones, and determination of an appropriate groundwater cleanup criteria for ammonia-nitrogen [NH_3(N)] in the backwater habitat, as outlined below:

        1) Acute Mixing Zone – the DOE is in error in its statement regarding the Utah Water Quality Regulations that "…no mixing zones are permitted for compliance with acute criteria." In contrast, the State rules depend on mixing zones to dilute or otherwise reduce point source discharges in rivers and streams (see Utah Administrative Code (UAC) R317-2-5). Beyond the acute mixing zone boundary, the acute standard must be met in the river's channel. Further, State rules also mandate that acute mixing zones must NOT (ibid.):

- Occlude or Obstruct the River Channel - instead, the width of the acute mixing zone cannot exceed 50% of the stream's width. This is done so as to allow adult fish the opportunity to swim around the acute mixing zone to avoid its toxicity (toxicity avoidance behavior).
- Have a Residency Time Greater than 15 Minutes –in other words, the acute mixing zone may not be longer than a distance equivalent to 15 minutes of in-stream travel time from the point source discharge. This length requirement is imposed in order to protect the downstream beneficial uses of the river.

Conceptually the acute mixing zone allows open channel turbulence to dilute the point source discharge to meet the acute standard. In practice, the mixing zone width and length criteria combine to control the maximum dimensions of an acute mixing zone. For a given point source discharge rate, these maximum dimensions may change with river stage. When river flow and velocity is high, the acute mixing zone may be narrow, and occupy a smaller relative cross-sectional area. Under lower flow conditions, the acute mixing zone may have a wider cross-sectional area. However, under all circumstances, the dimensions of the acute mixing zone must allow toxicity avoidance behavior of adult fish.

2) Applicability of Chronic Standards to Backwaters – from the above discussion it is clear that the chronic standard is applicable to the backwater habitats in question, for the following reasons:

- Lack of Point Source Discharge – discharge of contaminated groundwater to the backwater areas is not a point source discharge scenario. Therefore, the higher contaminant concentrations afforded by the acute standard, with its attendant mixing zone concept are NOT applicable to backwater habitat.
- Lack of Open Channel Turbulence – no open channel turbulence is found in backwater habitats, largely because they are open to the river's main channel only at their downstream end. Exchange of river water with the backwater habitat is only significant during rising river stage when water from the main channel enters at the downstream terminus. During this time river flow into the habitat is in a counter-current direction, and therefore little turbulence is expected. Without any open-channel turbulence no mixing zone can develop; and consequently, the acute standard is not applicable.
- Backwater Habitat: Largely Passive Flow - when backwater areas exist at the riverbank, they are fed primarily by groundwater baseflow, especially after peak runoff when river stage wanes, and when groundwater head is higher and dominates recharge to the backwater area. Because the Colorado River drainage is primarily an arid watershed, the river's flow for majority of the water year is derived principally from groundwater baseflow.

  Under rising river stage conditions, the exchange of river water into the habitat is rapid and transient. However, during these short periods, some horizontal seepage may also recharge the backwater by flowing thru the barrier sandbar. This source of recharge to the backwater will be a laminar flow, and not of a turbulent nature. Because rising river stage represents so little of the water year, it appears that the passive groundwater baseflow conditions are a much greater factor in life of a backwater area and its water recharge / quality conditions.

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- Lack of Opportunity for Avoidance Behavior – the life stage of the fish we are trying to protect is the larval or fry stage that cannot resist the current of the river's main channel. Because these young cannot practice toxicity avoidance behavior, the chronic standard should apply in the backwater areas.
- Long Residence Time – by definition the chronic standard is based on a minimum exposure time of 4 days (UAC R317-6-2, Table 2.14.2). The backwater areas in question form a nursery for the endangered fish, who may reside in the habitat for weeks or months. In contrast, the acute standard is designed for a 1-hour exposure (ibid.). Consequently, the chronic standard applies to the backwater areas.
- Utah Narrative Standards – in addition to all these considerations, the Utah Water Quality Rules also include a Narrative Standard (UAC R317-2-7.2) for the protection of fish. Such narrative prohibits "…concentrations or combinations of substances which produce undesirable physiological responses in desirable resident fish." Certainly it is clear that to prevent mortality of the endangered fish, the chronic $NH_3(N)$ standard is directly applicable to the backwater habitat.

C. Incomplete DOE Evaluation: Ammonia Transfer During Groundwater to Surface Water Interactions (p. 2-92) – the DOE states it has determined that $NH_3(N)$ contamination is reduced by a factor of 10 when the contaminated groundwater transitions from the shallow aquifer to the backwater habitat. This conclusion is based on crude and flawed DOE calculations of groundwater to surface water "dilution factors", as based on data originally collected by Fairchild, et.al. (see DOE Site Observational Work Plan (SOWP), p. 5-116 and Table 5-32). Review of these DOE calculations show several discrepancies exist that need to be resolved before any credit for a groundwater "dilution factor" can be determined, as follows (ibid., Table 5-32):

1) Lack of Evaluation: Data Time Dependence and Water Flow Field – based on the discussion above, it is clear that groundwater – surface water interactions are highly time dependent, in that discharge from the shallow aquifer to the backwater habitat, or visa versa, is highly time dynamic and significantly effected by river stage. As a result, it is necessary to understand this dynamic and establish if the river was losing or gaining water at each sampling station, before any calculation of a "dilution factor" is made. To do otherwise, could greatly over-estimate the "dilution factor" in that a low concentration observed in the pore fluids under the river channel may be the product of river water infiltration caused higher river stage, and not dilution. As a result, the data and interpretation presented in the DOE SOWP (Table 5-32) are crude and biased.
2) Need for Time Intensive Sampling – the time dependence and water flow field factors outlined above make it clear that time intensive sampling is required in order to adequately establish both the flow field and water quality conditions at each sampling site, which in turn allow accurate determination of "dilution factors". The grab samples collected by the USGS and used in Table 5-32 of the DOE SOWP were likely collected with a different purpose in mind. To establish and defend any calculation of "dilution factor", DOE needs to complete an aggressive sampling program designed specifically for this robust, time dynamic problem.
3) Missing Quality Assurance Evaluation – no evaluation was made in the DOE SOWP regarding important quality assurance issues, which is needed to verify context under

which the data were collected. No information was provided on the use of any field filtering of either the river water or pore water samples collected. Nor was any description provided on where in the water column the surface water samples were taken (water surface, mid-column, base of channel, etc), or how (e.g., discrete grab samples, composite samples, etc.). No information was provided about where any of these samples lie with respect to its position within the groundwater contaminant plume. Without such information it is difficult to put the data in context and interpret what it means. All this needs to be done before calculation of any "dilution factor".

4) Lack of Statistical Power in DOE Calculations: Problem of Standard Deviation – if one ignores the above factors of time dependence, water flow directions, and quality assurance concerns, and simply calculates the standard deviation of the data presented in Table 5-32 of the DOE SOWP, it is easy to see that there is little statistical power in the DOE presentation. We have repeated DOE's calculations and agree that the mean "dilution factor" is 73.65, based on the 55 values they provided in the table. However, we have found that the standard deviation of this same data is almost 3-times greater, 195.91. This extreme variability indicates that the data are not normally distributed, and are likely unrelated to one another. This finding casts further doubt on DOE's conclusions regarding a "dilution factor" for the site. Further evaluation, sampling, and analysis is necessary in order for DOE to arrive at a defensible ammonia "dilution factor" for the backwater habitat in question.

5) Need Apply Chronic Standard to Groundwater – as a result of all these considerations, it is clear that DOE needs to collect additional data. Until DOE is able to provide a scientifically defensible evaluation of this contaminant transfer phenomenon between the local groundwater and the backwater habitat, the chronic ammonia standard, 0.6 mg/l, must be applied as a compliance strategy to the local groundwater.

From the above discussion it is clear why the acute $NH_3(N)$ standard has no application to the backwater habitat in question. It is also clear that only the chronic $NH_3(N)$ standard, 0.6 mg/l, is applicable to this critical habitat. Lacking the requisite studies to adequately determine the geochemical behavior of $NH_3(N)$ during its transfer from the contaminated groundwater to the backwater areas, DOE must take the conservative posture and apply the chronic standard as an interim groundwater cleanup criteria. To do neither the required studies, or apply the chronic standard as a cleanup goal will result in a takings of endangered fish, and is not protective of the environment upon which they depend.

22. Section 2.3.2: Proposed Ground Water Action (p. 2-98) – statements made by DOE that the duration required for active groundwater remediation is similar regardless of the selection of an on or off-site disposal option is an artifact of the artificial groundwater cleanup standard selected for ammonia-nitrogen, 3.0 mg/l. As already mentioned above, if the chronic standard, 0.6 mg/l ammonia-nitrogen, were selected, the duration would increase to 200 years or more (see DOE DEIS, Fig. 2-43).

23. Section 2.3.2.1: Groundwater Remediation Options (p. 2-101) – in the discussion regarding deep well injection disposal in the Paradox Formation of contaminated wastewater generated by groundwater remediation, the DOE may want to consider the higher chance of success for such disposal in the deeper Mississippian-age Leadville Dolomite Formation, which is known regionally as oil-producing horizon.

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24. Section 2.3.2.4: Active Remediation Operations (pp. 2-106 and 107) – DOE has grossly underestimated the time and costs required for active groundwater remediation for the on-site option, based on the following two findings:

    A. DOE Cleanup Time Predictions are Artificial - the DOE statement that active groundwater remediation would only be needed for 75-80 years is an artificial construct built on the assumption that a groundwater cleanup goal of 3.0 mg/l (surface water acute ammonia-nitrogen standard) is appropriate for the Moab site. For reasons discussed above, this goal is not protective of the endangered fish in the backwater habitat areas. When the chronic ammonia-nitrogen standard, 0.6 mg/l, is used for this purpose, a striking difference arises in the comparative time required and related costs for on and off-site remediation of the tailings pile. Under this conditions, the time required for active groundwater remediation increases from 80 to 200 years (see DOE DEIS Fig. 2-43). This 120 year increase in the time the groundwater remediation system needs to be operated, equates to an incremental increase in total project cost of about $108,000,000 (see discussion above).

    B. DOE Contaminant Transport Model is Not Representative – Omission of Long-term Effects of Ammonia Salt Layer and Source Term Spike Concentration (Fig. 2-43) – the DOE statement that groundwater cleanup can be achieved in 75-80 years fails to include the effects of the ammonia salt layer in the tailings on the DOE contaminant transport model. Review of the DOE SOWP (pp. 6-11 and 12, and 7-23) show that DOE's contaminant transport model assumed a constant tailings pore fluid ammonia concentration source term (1,100 mg/l). However, by DOE's own estimates, this ammonia salt layer near the top of the tailings pile will solubilize and be transferred to the water table by infiltration seepage thru the on-site cover system. In turn, this seepage will then cause a 16-fold increase in the ammonia contamination applied at the water table (dissolved ammonia-nitrogen = 18,000 mg/l). Using DOE's estimates, this spike-like increase in ammonia would begin to arrive at the water table about 1,094 years after cover construction (SOWP, pp. 6-11 and 12 and Fig. 6-3). This means that the existing DOE ammonia break-thru curves (DEIS Fig. 2-43), are not fully representative, in that they are limited to the first 200 years of system performance, and that the asymptotic relationship shown for the on-site option will not hold true after year 1,094. At that point in time, the ammonia source term concentration applied to the water table will increase, and a subsequent spike increase in the predicted groundwater and backwater habitat concentrations will follow. DOE has estimated that the duration of this spike in ammonia concentration would be about 440 years (DEIS, p. 4-7 and SOWP, p. 6-11). Consequently, DOE's predictions that only 75-80 years of active groundwater remediation are required, ignore this delayed spike or pulse in the ammonia source term, and are therefore suspect. This also means that DOE has failed to fully evaluate the ammonia hazard to groundwater and the backwater areas for the entire life cycle or duration of the hazard, as instructed by the NAS (see discussion above). However, the long-term effects of this ammonia salt layer inside the tailings pile become mute, if the tailings are relocated.

25. Section 2.3.3: Uncertainties - Sensitivity and Omission of Key Transport Parameters and Need for Conservative Approach (pp. 2-108 and 109) – we have several concerns with the DOE statements made regarding uncertainty. We agree with the DOE statement that the outcome of contaminant transport modeling is commonly sensitive to the input values used. This is common knowledge by many who conduct contaminant transport modeling. Some of

these sensitive parameters include: soil/water partitioning (K_d) coefficients, contaminant source term, contaminant half-life, aquifer dispersion coefficients, etc. This is the underlying reason why DEQ is concerned about DOE's use of a surface water standard for the backwater habitat as a groundwater compliance and cleanup criteria for the project.

Unfortunately, DOE has simply assumed a 10-fold dilution will happen during transfer of the ammonia contamination from groundwater to surface water. This assumption is based on a crude evaluation of limited water quality data collected by others researchers who had another mission in mind. DOE's evaluation of this data is significantly flawed, and hence DOE's calculated "dilution factor" carries little weight or efficacy for the project. For additional details see DEQ discussion above. Despite these shortcomings, DOE has plowed ahead and made certain assumptions about its ability to control the contamination and protect backwater water quality habitat. At the nexus of this hubris is the risk that more than 120 extra years of active groundwater remediation could be required to cleanup this site, and the risk that the total project cost could be greater by at least $108,000,000. A matter with this weighty of a price tag deserves the expenditure of some resources to examine and resolve it.

This problem and the need for additional geochemical studies to examine these critical contaminant transport modeling assumptions were brought to DOE's attention during a July 9, 2003 conference call with DEQ staff, DOE, its contractors, and the U.S. Fish and Wildlife Service. At that time, DOE said it did not have time to fully explore and resolve this issue. Certainly the cost to resolve this issue will not decrease in the future. If DOE is unwilling or unable to study and resolve these concerns, it must then take a conservative posture and apply the same chronic ammonia-nitrogen surface water standard, 0.6 mg/l, as a groundwater cleanup criteria. To do otherwise is to take a huge gamble with a large amount of public money ($108,000,000).

26. Table 2-32: Summary and Comparison of Impacts – we have several concerns with statements made in this table, as follows:

    A. Surface Water (p. 2-140) – we take exception to the statement in this table that the on-site disposal option would result in only 80 years of active groundwater remediation. Based on the discussion above, 200 years or more may be required. It is important to consider the related price tag for this 120 or more years of extra groundwater cleanup, which equates to more than $108,000,000.

    B. Floodplains and Wetlands (p. 2-141) – no mention is made here about the adverse impact to the floodplain should river migration undercut the tailings pile and distribute contamination downstream. Based on the discussion above, this risk needs to be accounted for and the consequences discussed in this table.

    C. Accident Conditions, Disposal Cell Failure – Omission of River Migration Issue (p. 2-163) – DOE has flagrantly omitted any mention of adverse impacts to downstream users should the river migrate and undercut the tailings pile at some time in the future. Such destabilization would distribute contaminated tailings along beaches and sandbars across long stretches of the Colorado River. This contamination would have a significant impact to the local tourist economy. Costs to the public to cleanup such a spill would be extremely high and the task very difficult given the lack of access, the remote locations, and logistics of river travel thru the canyonlands.

27. Section 2.6.3: Consequences of Uncertainty – Omission of Sensitive River Migration Issue (p. 2-165) – we take strong exception to the statement that groundwater modeling is the only

aspect of uncertainty that has the potential to significantly effect the reclamation decision. As discussed above, DOE has acted in a biased and prejudicial manner in its downplay of the river migration issue for this site. Recent USGS hydrologic modeling has clearly demonstrated that this stretch of the Colorado River has the potential to undercut and de-stabilize the tailings pile under 100-year flood flow conditions. Even greater erosion potential is evident under higher flow conditions, and/or in combination with any river channel scour that may develop near the West Portal. Further, nearby river terrace gravel deposits found also provide sound geologic evidence of the river's erosive power in the past. Clearly the National Academy of Science identified this issue as critical to the project reclamation decision. To leave the pile in place and then have the river undercut and destabilize it during a future flood event would have dramatic negative impacts to tourism and recreational uses of the river between Moab and Lake Powell. Contamination left on beaches and sandbars along this stretch or the river would be extremely difficult and costly to cleanup. These impacts must be discussed in this section regarding the consequences of uncertainty. The costs that would follow such a failure also need to be clearly spelled out for all to see.

28. Table 2-33: Consequences of Uncertainty (pp. 2-166 thru 175) – this table is a recapitulation of the same discussion in Table S-1 of the DEIS Summary. Therefore all the State comments above for Table S-1 apply to this section also (see discussion beginning on page 2, above).

29. Section 2.7.1: Areas of Controversy – FWS Position (p. 2-165) – we take strong exception with the implication that the US Fish and Wildlife Service (FWS) agrees with DOE on the application of target goals for groundwater cleanup. As stated previously, DEQ discussions have found that both DEQ and FWS agree that the chronic ammonia-nitrogen standard must be met in the backwater habitat in order to protect endangered fish. However, the DOE statement that "The USF&WS agrees with DOE that the target goals that DOE has selected would be protective of aquatic species in the Colorado River" is misleading. What was not said, is that this FWS agreement is conditioned upon unsubstantiated DOE affirmations that the proposed groundwater cleanup goal (acute 3.0 mg/l ammonia-nitrogen standard) will allow water quality conditions in the backwater habitat to meet the 0.6 mg/l chronic ammonia nitrogen standard (personal communication, Henry Maddux, FWS – Salt Lake City).

    To date, DOE has not completed any technical studies to confirm if its claim can actually be met. Further, DOE's assumptions on the groundwater to surface water dilution factor are weak and without merit, as discussed above. In addition, DEQ has little confidence in DOE's contaminant transport predictions, in that it failed to incorporate the effects of the secondary ammonia pulse that would result long-term from leaching of the ammonia salt layer found in the upper portion of the tailings pile.

    Further, it is important to note that the FWS will stipulate conditions in the upcoming Biologic Opinion to require DOE to positively demonstrate that the groundwater remediation system will allow water quality conditions in the backwater area to meet the 0.6 mg/l chronic ammonia-nitrogen standard (personal communication, Henry Maddux, USFWS, SLC).

    Until this demonstration is made, it is uncertain if DOE can successfully meet the required water quality conditions and prevent takings of endangered fish with the on-site stabilization option. Should DOE be unable to successfully complete this demonstration, it is possible that the time required for groundwater remediation will increase by more than 120 years (from 80 to 200 years total). This would result in an increase in the total on-site remediation cost of at least $108,000,000. Such a large amount of public resources deserves additional

evaluation to determine if the proper geochemical conditions exist to support DOE's groundwater dilution assumptions. Lacking such an evaluation, the DOE should conservatively assume at least a 200 year timeframe for active groundwater remediation under the on-site option, and include these related costs in the total project cost.

Should DOE be unsuccessful in making this demonstration, a dramatic difference will exist between the on and off-site remediation options in that the on-site option would take 200 years instead of 80 to cleanup the groundwater. This would result in an increased cost to the total on-site remediation project of $108,000,000, which is about 65% of the total cost for this option. Under these circumstances there would be a significant difference in the costs for the on-site versus off-site solutions (contrary to DOE's statements). This information must be provided to the policymakers.

30. Section 2.7.1: Areas of Controversy – Comparability of Groundwater Remediation Costs (p. 2-176) – the DOE statement that "Groundwater remediation would occur under any of the action alternatives" must be clarified. As discussed above, leaving the pile in place will perpetuate the contaminant source term, and likely require 200 years or more of active groundwater remediation in order to meet the 0.6 mg/l chronic ammonia-nitrogen standard. For this reason, there is a dramatic difference in groundwater remediation costs for the on-site versus the off-site options.

31. Section 2.7.3: Costs – Need to Revise Reflect Omitted Issues (p. 2-178 and Table 2-35) – discussion in this section has omitted 2 critical issues that have significant bearing on the costs involved, as follows:

    A. On-Site Implications for River Migration – recent USGS river water velocity and shear force modeling has demonstrated that the river has the potential to move particle sizes in the range of medium sized (1.45-2.91 inch) gravels under the 100-year flow condition, see Attachment 1, below (Kenney, Fig. 47). Larger particle sizes can be moved under higher flow rates (ibid, Figs 48 and 49), or if scouring of the river bed occurs at the West Portal (ibid., Figs. 50, 51, or 52, etc). Clearly if the river channel can transport material this size it can easily erode silts and fine sands found on the riverbank and under the tailings pile. Consequently, if the on-site option is selected, the right riverbank will need to be armored to protect the tailings pile from erosion.

    We also strongly disagree with DOE that river migration will be a slow process that can be managed from year to year. On the contrary river avulsion can be rapid and catastrophic, especially under flood conditions found in the arid southwestern United States. This was recently reaffirmed in Utah when the Santa Clara river jumped its banks and destroyed more than 25 homes in a matter of hours.

    As a result, the riprap protection required to protect the tailings pile will need to be extensive and run for 1,000's of feet along the mill site and adjacent to the tailings pile (ibid., Fig. 47). This material will need to be significantly larger in diameter than what the river can transport, and of high quality to resist these erosional forces. The costs associated with this construction need to be added to the on-site option in Table 2-35.

    B. On-Site Implications for Chronic Ammonia-Nitrogen Standard for Groundwater Cleanup - the statement that the on-site option will require only 80 years of active groundwater remediation is an artificial construct based on an substantiated DOE assumptions regarding the applicable groundwater cleanup standard and "dilution" factors. As discussed above, this figure could be greatly larger should the 0.6 mg/l chronic ammonia-

nitrogen standard be applied to the groundwater cleanup. Further, DOE's groundwater to surface water "dilution" factor is suspect. As a result, more than $108,000,000 is riding on these DOE assumptions. Should DOE be wrong on either of these, more than 200 years of active groundwater would be required, which would result in an increased project cost of at least $108,000,000 (120 extra years @ $900,000/year). Certainly this problem deserves additional study and evaluation. However, if DOE is unable to complete this pre-requisite work, the conservative assumption should be made and the on-site stabilization option increased to reflect this additional cost. Please modify Table 2-35 to reflect at least a $108,000,000 increase in the on-site stabilization cost.

32. Section 2.7.3.1: On-Site Versus Off-Site Disposal Alternative Comparison (p. 2-179) – the percentages listed need to be revised. The cost figures in Table 2-35 need to be adjusted to reflect at least 120 more years of additional active groundwater remediation that will be needed for the on-site stabilization option, as a result of the chronic ammonia-nitrogen (0.6 mg/l) standard for groundwater cleanup and the failure to evaluate the secondary ammonia pulse. At a minimum, the total project costs should be changed as shown in the table below. With these new figures, the Klondike Flat option is only 14% more than the on-site stabilization alternative, while the Crescent Junction is only 15% more.

    Given the risk of river migration that the on-site option poses, the related design engineering/construction costs to control the river, and the long term maintenance costs that might be involved, this 14% differential is an inexpensive insurance policy.

	Stabilize in Place	Klondike Flats			Crescent Junction			White Mesa	
		Truck	Rail	Pipeline	Truck	Rail	Pipeline	Truck	Rail
Previous DOE Grand Total (Table 2-35)	$248.8 M	$407.2 M	$468.7 M	$472.1 M	$410.8 M	$472.3 M	$479.0 M	$497.1 M	$542.7 M
120 years of Extra Groundwater Remediation	$108 M	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Extra Riprap Protection	TBD	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
New Grand Total	$356.8 M	$407.2 M	$468.7 M	$472.1 M	$410.8 M	$472.3 M	$479.0 M	$497.1 M	$542.7 M
Ratio of Offsite to Onsite Costs	1.00	1.14	1.31	1.32	1.15	1.32	1.34	1.39	1.52

None of these figures include the 440 years of active groundwater remediation that will be needed at year 1,110 to control the secondary ammonia pulse from leaching of the ammonia salt layer found in the upper reaches of the pile. If we use the $900,000/year cost estimate for this active groundwater remediation, the cost for future control of this ammonia salt layer