


Appendix A

CERTIFICATION OF ADMINISTRATIVE RECORD INDEX

Appeal No. UIC 15-03

**West Bay Exploration Company
West Bay 22 SWD
UIC Permit MI-075-2D-0009**

I, Jeffrey Wawczak, an Environmental Scientist and permit writer in the Underground Injection Control Branch of the Water Division of the U.S. Environmental Protection Agency, Region 5, certify that the attached Administrative Record Index is accurate and complete, referencing all of the documents in the administrative record for this final permit decision. The administrative record includes, to the best of my knowledge, all documents required by 40 C.F.R. § 124.18.



Jeffrey Wawczak, Permit Writer
Underground Injection Control Branch,
U.S. EPA, Region 5



Date

**Index to the Administrative Record
West Bay 22 SWD, Final Permit # MI-075-2D-0009**

Doc ID	Date of doc	Date received	Title/Description/Subject	Author/sender	Addressee
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I. Administrative Record (40 C.F.R. § 124.18(b))

a. Permit application (40 C.F.R. § 124.9(b)(1))

WB-1	3/20/2011	4/21/2011	Application for Permit: West Bay #22, West Bay Exploration Company	Timothy Brock, West Bay	EPA
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b. Supporting documentation supplied by permit applicant (40 C.F.R. § 124.9(b)(1))

WB-2	7/27/2011	8/1/2011	Re: Proposed West Bay 22 SWD	Ann M. Baker, West Bay	Jeffrey McDonald, EPA
WB-3	8/30/2011	9/1/2011	Re: Proposed West Bay 22 SWD / Attachment Q	Ann M. Baker, West Bay	Anna Miller, EPA
WB-4	9/29/2011	10/3/2011	Re: West Bay 22 SWD and Haystead 9 SWD	Ann M. Baker, West Bay	Anna Miller, EPA
WB-5	11/28/2011	11/29/2011	Re: Haystead 9 SWD West Bay 22 SWD (bond)	Ann M. Baker, West Bay	Anna Miller, EPA
WB-6	12/13/2011	12/14/2011	Re: West Bay 22 SWD and Haystead 9 SWD / Attachment Q	Ann M. Baker, West Bay	Anna Miller, EPA
WB-154	8/9/2013	8/9/2013	Westshore Consulting -West Bay 22 SWD, Section 22, Novell Township, T4S, R2E, Jackson County, Michigan	Eric R. Johnson, Westshore Consulting	Mr. Jeffrey Wawczak, EPA & West Bay
WB-162	4/30/2013	4/30/2013	Re:West Bay 22 SWD (West Bay 22 SWD Seis Line.jpg, Attached)	Timothy Brock, West Bay	Jeffrey Wawczak, EPA
WB-163	8/15/2013	8/15/2013	Subject line of Email: Geo Cross section (Attachment)	Tim Baker, West Bay	Jeffrey Wawczak, and Tim Elkins, EPA
WB-164	4/23/2013	4/23/2013	Consideration of Induced Seismicity, West Bay 22 SWD	Timothy Brock, West Bay	US EPA
WB-165	8/9/2013	8/9/2013	West Bay 22 SWD, Jackson County, Michigan - Endangered Species section 7 Consultation (Attachments)	Jenifer Garwood, Westshore Consulting	Jeffrey Wawczak, EPA
WB-166	4/26/2013	4/26/2013	Re: West Bay 22 SWD	Timothy Brock, West Bay	Jeffrey Wawczak, EPA
WB-223	4/23/2013	4/23/2013	Seismic cross section entitled "Perspective Salt Water Disposal Wells, Napoleon Field, Jackson County, Michigan	Timothy Brock, West Bay	Jeffrey Wawczak, EPA
WB-167	4/23/2013	4/23/2013	Re: West Bay 22 SWD (Attachments Consideration of Induced Seismicity, West Bay 22 SWD)	Timothy Brock, West Bay	Jeffrey Wawczak, EPA

c. Draft permit or notice of intent to deny the application or terminate the permit (40 C.F.R. § 124.9(b)(2))

WB-7	12/28/2011	NA	Cover Letter: Draft permit West Bay 22 MI-075-2D-0009	Rebecca Harvey, EPA	Timothy Brock, West Bay
WB-8	12/28/2011	NA	Draft permit West Bay 22 MI-075-2D-0009	Rebecca Harvey, EPA	Timothy Brock, West Bay
WB-172	10/10/2014	NA	Cover Letter: Draft permit West Bay 22 MI-075-2D-0009	Tinka Hyde, EPA	Tim Baker, West Bay
WB-173	10/10/2014	NA	Draft permit West Bay 22 MI-075-2D-0009	Tinka Hyde, EPA	Tim Baker, West Bay

d. Statement of basis or fact sheet (40 C.F.R. § 124.9(b)(3))

WB-9	12/28/2011	NA	Statement of Basis for permit for West Bay 22 MI-075-2D-0009	Rebecca Harvey, EPA	Timothy Brock, West Bay
WB-10	12/28/2011	NA	Letter: Public Notice materials	Rebecca Harvey, EPA	Jackson District Library
WB-11	1/20/2012	NA	Public Notice and Fact Sheet - first comment period	EPA	Recipients, list attached
WB-12	4/17/2012	NA	Public Hearing and New Comment Period Notice: Permit process reopened for injection well MAY 2012	EPA	multiple recipients, attached list
WB-13	4/17/2012	4/23/2012	Proof of publication / Jackson Citizen Patriot	Grand Rapids Press	EPA
WB-174	October, 2014	NA	(Fact Sheet) EPA Seeks Public Comments on Draft Injection Well Permit	US EPA	West Bay #22 Mailing List
WB-175	10/14/2014	NA	Certificate of Service & West Bay Exploration Mailing List	Lilly Simmons	West Bay #22 Mailing List
WB-176	10/17/2014	10/28/2014	Affidated - Jackson Citizen Patriot	Marietta Foley, Notary Public	Lilly Simons, EPA

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WB-177	10/14/2014	NA	RE: Draft Permit for the West Bay #22 Well in uackson Coungy; U.S. Environmental Protection Agency Permit #MI-075-2D-0009	Tinka G. Hyde, EPA	4/27/2016 West Bay Exploration
WB-178	10/14/2014	NA	RE: Public Notice and Public Comment Period for Underground Injection Control Draft Permits in Jackson County Michigan	Lisa Perenchio, EPA	Mr. Russ Mason, Michigan DNR, Wildlife Division\
WB-179	10/14/2014	NA	(Via Email) RE: Public Notice and Public Comment Period for Underground Injection Control Draft Permits in Jackson County Michigan	Lisa Perenchio, EPA	Mr. Jim Dexter, Michigan DNR, Fisheries Division
WB-180	10/14/2014	NA	(Via Email) RE: Public Notice and Public Comment Period for Underground Injection Control Draft Permits in Jackson County Michigan	Lisa Perenchio, EPA	Ms. Annette Trowbridge, Ecological Services, USEWS
WB-181	10/14/2014	NA	(Via Email) RE: Public Notice and Public Comment Period for Underground Injection Control Draft Permits in Jackson County Michigan	Lisa Perenchio, EPA	Mr. Brian D. Grennerll, Michigan State Historic Preservation Office
WB-182	10/14/2014	NA	(Via Email) RE: Public Notice and Public Comment Period for Underground Injection Control Draft Permits in Jackson County Michigan	Lisa Perenchio, EPA	Mr. Reid Nelson, Office of Federal Agency Programs,
WB-183	10/14/2014	NA	(Via Email) RE: Public Notice and Public Comment Period for Underground Injection Control Draft Permits in Jackson County	Lisa Perenchio, EPA	Mr. Matt Fry, Michigan DNR,
WB-184	10/14/2014	NA	Letter to Jackson Districk Library	Lisa Perenchio, EPA	Ms. Debbie Sears, Jackson District
WB-185	10/14/2014	NA	MI-075-2D-0009 West Bay Draft Permit	Denice Dumas, EPA	Mark Snow, Michigan DEQ

e. All documents cited in the statement of basis or fact sheet (40 C.F.R. § 124.9(b)(4))

WB-14	NA	NA	Safe Drinking Water Act and Regulations at 40 C.F.R. 144 and 146 (publically available online)	NA	NA
WB-146	N/A	N/A	Michigan Hydrologic Atlas, Parts I (Hydrology for Underground Injection Control in Michigan) and Part II (atlas maps), Department of Geology, Western Michigan University, Kalamazoo, Michigan, 1981.	NA	NA

f. Other documents contained in the supporting file for the draft permit (40 C.F.R. § 124.9(b)(5))

WB-15	7/18/2011	8/1/2011	Re: ER11-451 Westshore Consulting Well projects - West Bay 22 SWD, Section 22, T4S, R2E, Norvell Township, Jackson County (EPA)	Martha McFarlane Facs, MI SHPO	Jeffrey McDonald, EPA
WB-16	6/3/2011	8/1/2011	West Bay well application for MDEQ	Anni Backer, West Bay	MDEQ
WB-17	8/12//11	8/12//11	Information for West Bay 22 D	Anna Miller, EPA	Timothy Brock, Ann Baker, West Bay
WB-18	8/29/2011	8/29/2011	Fw: Information for West Bay 22 D	Anna Miller, EPA	Timothy Brock, , West Bay
WB-19	9/23/2011	9/23/2011	Re: Information for West Bay 22 D	Anna Miller, EPA	Ann Baker, West Bay
WB-20	9/23/2011	9/23/2011	Re: Information for West Bay 22 D	Anni Baker, West Bay	AnnaMiller, EPA
WB-21	9/23/2011	9/23/2011	Re: Information for West Bay 22 D	Anna Miller, EPA	Ann Baker, West Bay
WB-22	11/17/2011	11/17/2011	Re: Information for West Bay 22 D	Anna Miller, EPA	Ann Baker, West Bay
WB-23	11/28/2011	11/28/2011	West Bay Exploration West Bay 22 SWD	Timothy Brock, West Bay	Anna Miller, EPA Ann Baker
WB-24	11/28/2011	11/28/2011	Re: West Bay Exploration West Bay 22 SWD	Anna Miller, EPA	Timphy Brock, Ann Baker, West Bay
WB-25	12/8/2011	12/8/2011	Re: West Bay Exploration West Bay 22 SWD	Anna Miller, EPA	Timphy Brock, Ann Baker, West Bay
WB-26	12/8/2011	12/8/2011	Endangered Species Act Compliance Determination	Anna Miller, EPA	file
WB-141	11/1/1999	2/22/2014	Service, U.S. Fish & Wildlife. Eastern Massasuga Fact Sheet. November 1999. Document/Website. 22 Febuary 2014. < http://www.fws.gov/midwest/endangered/reptiles/cama/eama-fct-sht.html >.	U.S. Fish and Wildlife	NA

Doc ID	Date of doc	Date received	Title/Description/Subject	Author/sender	Addressee
WB-142	6/4/2014	2/22/2014	Service, U.S. Fish & Wildlife.. Indiana Bat Fact Sheet. 4 June 2014. Website/Document. 17 June 2014. < http://www.fws.gov/midwest/endangered/mammals/inba/index.html >.	U.S. Fish and Wildlife	1/27/2016 NA
WB-143	1/1/1999	2/22/2014	Service, U.S. Fish & Wildlife.. Mitchell's Satyr Butterfly Fact Sheet. 22 January 1999. Website/Document. 22 February 2014. < http://www.fws.gov/midwest/endangered/insects/misa_fctsh.html >.	U.S. Fish and Wildlife	NA
WB-144	9/1/2013	2/22/2014	Service, U.S. Fish & Wildlife.. Northern Long-Eared Bat Fact Sheet. September 2013. Webpage/Document. 22 February 2014. < http://www.fws.gov/midwest/endangered/mammals/nlba/nlbaFactSheet.html >.	U.S. Fish and Wildlife	NA
WB-145	9/1/2013	2/22/2014	Service, U.S. Fish & Wildlife.. Poweshiek Skipperling Fact Sheet. September 2013. Website/Document. 22 February 2014. < http://www.fws.gov/midwest/endangered/insects/posk/PoweshiekSkipperlingFactSheet.html >.	U.S. Fish and Wildlife	NA
WB-147	N/A	N/A	Stratigraphic nomenclature for Michigan, Michigan Department of Environmental Quality, 2000. Michigan stratigraphic column.	NA	NA
WB-148	N/A	N/A	Apple, Beth A. and Howard W. Reeves—Summary of Hydrogeologic Conditions by County for the State of Michigan—U.S. Geological Survey Open-File Report 2007-1236, 87 pp. Date Posted: September 21, 2007: [http://pubs.water.usgs.gov/ofr2007-1236/]	NA	NA
WB-149	12:00:00 AM	N/A	The United States Geological Survey (USGS) Site. Geologic Hazards Science Center, 2009 Earthquake Probability Mapping Application. Web. 9 April 2013. https://geohazards.usgs.gov/eqprob/2009/index.php	NA	NA
WB-150	N/A	N/A	The Michigan Department of Environmental Quality (MDEQ) Site. The GeoWebFace Web Accessible Maps, Data, Files Application.	NA	NA
WB-151	12:00:00 AM	N/A	The United States Geological Survey (USGS) Site. Earthquake Hazards Program, Global Earthquake Search (Beta) Application. Web. 11 April 2013. http://earthquake.usgs.gov/earthquakes/cqarchives/epic/	NA	NA
WB-152	August, 2014	June, 2104	Michigan Department of Environmental Quality. <i>one</i> . August 2001-2014. Map Viewer. August 2014. < http://www.mcgi.state.mi.us/wetlands/mapBasic.aspx >.	NA	NA
WB-153	3/1/2014	3/1/2014	Google Earth Areal site 2013	NA	NA
WB-155	June, 2014	N/A	Michigan Department of Environmental Quality (MDEQ) WELL FILE #59996 , MDEQ site The GeoWebFace Web Accessible Maps, Data, Files Application, 2013. Web. June 2014. Http://ww2.deq.state.mi.us/GeoWebFace/#	NA	NA
WB-156	June, 2014	N/A	Michigan Department of Environmental Quality (MDEQ) WELL FILE #60010 , MDEQ site The GeoWebFace Web Accessible Maps, Data, Files Application, 2013. Web. June 2014. Http://ww2.deq.state.mi.us/GeoWebFace/#	NA	NA
WB-157	June, 2014	N/A	Michigan Department of Environmental Quality (MDEQ) WELL FILE #60011 , MDEQ site The GeoWebFace Web Accessible Maps, Data, Files Application, 2013. Web. June 2014. Http://ww2.deq.state.mi.us/GeoWebFace/#	NA	NA
WB-158	June, 2014	N/A	Michigan Department of Environmental Quality (MDEQ) WELL FILE #60094 , MDEQ site The GeoWebFace Web Accessible Maps, Data, Files Application, 2013. Web. June 2014.	NA	NA
WB-159	9/9/2014	June, 2014	U.S. Fish and Wildlife. <i>U.S. Fish and Wildlife</i> . 9 September 2014. Web Page. June 2014. < http://www.fws.gov/Endangered/ >.	NA	NA
WB-160	1/1/2007	7/22/2014	USFW Summer Life history information for Michigan, Indiana Bat	NA	NA
WB-161	8/27/2013	8/27/2013	EPA Region UIC Meeting (Microsoft Outlook Meeting Reservation), West Bay Seismic Report: EPA "Meeting to review and discuss West Bay cross sections and seismic reports".	Jeffrey Wawczak, EPA	Tim Elkins, Ross Micham, EPA
WB-168	12/24/2013	NA	UIC National Technical Workgroup. Minimizing and Managing Potential Impacts of Injection -Induced Seismicity Class II Disposal Wells: Practical Approaches. Washington, DC: US Environmental Protection Agency, (Draft) 2014.	National Technical Workgroup	NA
WB-169	10/8/2014	NA	Report to file - Induced Seismicity	Jeffrey Wawczak, EPA	The File
WB-170	10/8/2014	NA	Report to file - Site Geology	Jeffrey Wawczak, EPA	The File
WB-171	10/8/2014	NA	Report to file - Environmental Impact	Jeffrey Wawczak, EPA	The File

II. All Comments Received During the Public Comment Period (40 C.F.R. § 124.18(b)(1))

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a. Comments Received During the First Public Comment Period 1/20/12 - 2/21/12 (40 C.F.R. § 124.18(b)(1))

WB-27	1/30/2012	2/2/2012	Questions about well; Request for public hearing	Pamela Bacon	Permit Writer
WB-28	2/1/2012	2/1/2012	Injection Drilling	Markus	Anna Miller, EPA
WB-29	2/3/2012	2/3/2012	proposed injection site Brooklyn mi. [sic] West Bay Exploration	Timothy Porter	Anna Miller, EPA
WB-30	2/6/2012	2/6/2012	Clarification on comment 2/1/12, above	Tom Markus	Anna Miller, EPA
WB-31	2/10/2012	2/10/2012	Well Name: West Bat [sic] 22 SWD; Request for public hearing	John Gajar	Anna Miller, EPA
WB-32	2/11/2012	2/13/2012	Concern about well	Robert E. Wincent	EPA, Lisa Perenchio
WB-33	2/13/2012	2/13/2012	Request for public hearing	Adam M	Anna Miller, EPA
WB-34	2/13/2012	2/13/2012	Proposed Class II Injection Well Permit EPA Draft Permit #Mi [sic]-075-2D-0009 Well Name: West Bay 22 SWD MDEO [sic] Permit 60366	Gary and Joan Zoldowski	Anna Miller, EPA
WB-35	2/15/2012	2/15/2012	Request for Public Hearing Permit # MI-075-2d-0009, West Bay 22 SWD	Mark Muhich, Sierra Club Central Michigan	Anna Miller, EPA, Mark Muhich
WB-36	2/16/2012	2/16/2012	Brine Disposal in Norvell Township	Traci Rowley	Anna Miller, EPA
WB-37	2/16/2012	2/16/2012	Public Hearing Requested for Norvell	Tom and Jill Blumhardt	Anna Miller, EPA
WB-38	2/16/2012	2/16/2012	Public hearing requested for waste well drilling in Norvell Township	Matt Blumhardt	Anna Miller, EPA
WB-39	2/17/2012	2/17/2012	Request for Public Hearing	Katherine Wilson	Anna Miller, EPA
WB-40	2/17/2012	2/17/2012	Request a Hearing (email)	Adam Ulbin	Lisa Perenchio, Anna Miller, EPA
WB-41	2/18/2012	2/18/2012	Draft Permit MI-075-2D-009 West Bay 22 SWD	John Weaver	Anna Miller, EPA
WB-42	2/19/2012	2/19/2012	Norvell Twnp. ejection [sic] well hearing	Holly Taylor	Anna Miller, EPA
WB-43	2/20/2012	2/20/2012	No Subject	bhellner	Anna Miller, EPA
WB-44	2/20/2012	2/20/2012	Injection Well in the Irish Hills of. [sic] Michigan	Bernard Coyne	Anna Miller, EPA
WB-45	2/20/2012	2/20/2012	Permit # MI-075 [sic]-2d-0009/West Bay 22 SWD	Anita Fobes	Anna Miller, EPA
WB-46	2/20/2012	2/20/2012	Injection well/jackson county, Mi [sic]/read now	Victoria Powell	Anna Miller, EPA
WB-47	2/20/2012	2/20/2012	Dump Site	Angela Trotter	Anna Miller, EPA
WB-48	2/20/122	2/20/2012	EPA Draft Permit #MI-075-2D-0009 West Bay 22 SWD	Sylvia Kay	Anna Miller, EPA
WB-49	2/20/2012	2/20/2012	Jackson County MI EPA Draft Permit# MI-075-2D-0009	Niki White	Anna Miller, EPA
WB-50	2/14/2012	2/21/2012	Voicing Support for hearing & comments (form letter)	Jill Blumhardt	Anna Miller, EPA
WB-51	2/15/2012	2/12/2012	Comments and request for hearing	David J. Holek	Lisa Perenchio, EPA
WB-52	2/15/2012	2/21/2012	Voicing Support for hearing & comments (form letter)	Thomas Blumhardt	Anna Miller, EPA
WB-53	2/15/2012	2/21/2012	Voicing Support for hearing & comments (form letter)	Joana Bolte	Anna Miller, EPA
WB-54	2/15/2012	2/21/2012	Voicing Support for hearing & comments (form letter)	Judith Bolte	Anna Miller, EPA
WB-55	2/16/2012	2/21/2012	Voicing Support for hearing & comments (form letter)	Arthur Bolte	Anna Miller, EPA
WB-56	2/16/2012	2/21/2012	Voicing Support for hearing & comments (form letter)	Cyril Frolich	Anna Miller, EPA
WB-57	2/12/2012	2/21/2012	Comments on draft permit, request delay	Fred M. and Donna I. Marsh	Anna Miller, EPA
WB-58	2/15/2012	2/21/2012	comment/request for public hearing	Catherine King	Anna Miller, EPA
WB-59	2/17/2012	2/21/2012	Request a Hearing (letter)	Adam Ulbin	Lisa Perenchio, Anna Miller, EPA
WB-60	2/15/2012	2/21/2012	Voicing Support for hearing & comments (form letter)	Carolyn Kuehn	Anna Miller, EPA
WB-61	2/15/2012	2/21/2012	Voicing Support for hearing & comments (form letter)	Dennis C. Eberenz	Anna Miller, EPA
WB-62	2/15/2012	2/21/2012	Voicing Support for hearing & comments (form letter)	Pamela Eberenz	Anna Miller, EPA
WB-63	2/19/2012	2/23/2012	Voicing Support for hearing & comments (form letter)	Sandra Duncan-Harris	Anna Miller, EPA

b. Comments Received between First and Second Public Comment Period 2/22/12 - 4/17/12 (and correspondence)

WB-64	2/27/2012	2/27/2012	Injection Well Public Hearing	Jill Blumhardt	Anna Miller, EPA
WB-65	3/2/2012	3/2/2012	Injection Wells in Brooklyn	Peter Bormuth	Anna Miller, EPA
WB-66	3/5/2012	3/5/2012	Re: Comments on EPA draft permit	Anna Miller, EPA	Peter Bormuth
WB-67	3/6/2012	3/6/2012	Re: Injection wells in Brooklyn	Peter Bormuth	Anna Miller, EPA
WB-68	3/7/2012	3/7/2012	Re: Injection wells in Brooklyn	Anna Miller, EPA	Peter Bormuth
WB-69	3/7/2012	3/7/2012	Re: injection wells in Brooklyn	Peter Bormuth	Anna Miller, EPA
WB-70	3/9/2012	3/9/2012	RE: Injection wells in Brooklyn	Peter Bormuth	Anna Miller, EPA
WB-71	3/12/2012	3/12/2012	Re: Injection wells in Brooklyn	Anna Miller, EPA	Peter Bormuth
WB-72	3/13/2012	3/13/2012	Re: Injection wells in Brooklyn	Peter Bormuth	Anna Miller, EPA
WB-73	3/15/2012	3/15/2012	Re: Injection wells in Brooklyn	Anna Miller, EPA	Peter Bormuth
WB-74	4/5/2012	4/5/2012	Inquiry regarding Permit Application for West Bay #22 Injection Well	Anna Miller, EPA	Peter Bormuth
WB-75	4/5/2012	4/5/2012	Re: Inquiry regarding Permit Application for West Bay #22 Injection Well	Peter Bormuth	Anna Miller, EPA

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WB-76	4/10/2012	4/10/2012	RE: Inquiry regarding Permit Applications for West Bay #22 Injection Well	Peter Bormuth	Anna Miller, EPA
WB-77	4/11/2012	4/11/2012	Re: Inquiry regarding Permit Application for West Bay #22 Injection Well	Anna Miller, EPA	Peter Bormuth
WB-78	4/11/2012	4/11/2012	RE: Inquiry regarding Permit Applications for West Bay #22 Injection Well	Peter Bormuth	Anna Miller, EPA

c. Comments Received During the Second Public Comment Period 4/17/12 - 6/1/12 (40 C.F.R. § 124.18(b)(1))

WB-79	4/23/2012	4/23/2012	RE: Inquiry regarding Permit Applications for West Bay #22 Injection Well	Peter Bormuth	Anna Miller, EPA
WB-80	4/24/2012	4/24/2012	trucks	Peter Bormuth	Anna Miller, EPA
WB-81	5/6/2012	5/6/2012	Injection Well Hearing Brooklyn, MI 5/23/12	Dorothy Ann Coyne	Anna Miller, EPA
WB-82	5/7/2012	5/7/2012	Comment on West Bay Permit#22	Susan S. Morse	Anna Miller, EPA
WB-83	5/12/2012	5/12/2012	West Bay #22 Well draft permit	Linda Britt	Anna Miller, EPA
WB-84	5/14/2012	5/14/2012	Proposed injection well in Irish Hills	Patricia Shalis	Anna Miller, EPA
WB-85	5/14/2012	5/14/2012	Irish Hills injection wells	hccsnuggle (Dr. D. Olsen)	Anna Miller, EPA
WB-86	5/15/2012	5/15/2012	Injection Well Hearing Brooklyn [sic] MI 5/23/12	George SanFacon	Anna Miller, EPA
WB-87	5/16/2012	5/16/2012	Injection Well proposal in Irish Hills	Patricia Shalis	Anna Miller, EPA
WB-88	5/17/2012	5/17/2012	West Bay #22 Well draft permit -Comment	Tamsin Wooton	Anna Miller, EPA
WB-89	5/21/2012	5/21/2012	Letter Requesting data for the permit ATTY REQUEST	Dennis J. Conant	Anna Miller, EPA
WB-90	5/22/2012	5/22/2012	Comment Regarding West Bay #22 Well Draft Permit	Gretchen Waters	Anna Miller, EPA
WB-91	5/22/2012	5/22/2012	NO to Injection Well Permit, Irish Hills MI	Brenard Coyne	Anna Miller, EPA
WB-92	5/22/2012	5/22/2012	EPA Permit to West Bay #22	John Gajar	Anna Miller, EPA
WB-93	5/22/2012	5/22/2012	injection well drilling in brooklyn well [sic]	Craig Alden Cammann	Anna Miller, EPA
WB-94	5/22/2012	5/22/2012	Injection Well Drilling Brooklyn MI	Cassie Cammann	Anna Miller, EPA
WB-95	5/22/2012	5/30/2012	Comment Letter	Brent Bartson	Anna Miller, EPA
WB-96	5/23/2012	5/23/2012	injection well	Jane Gamble	Anna Miller, EPA
WB-97	5/23/2012	5/23/2012	Injection well permit	Geoffrey Gamble	Anna Miller, EPA
WB-98	5/24/2012	5/24/2012	RE: Inquiry regarding Permit Applications for West Bay #22 Injection Well	Peter Bormuth	Anna Miller, EPA
WB-99	5/29/2012	5/29/2012	comments for hearing May 23 2012, Brooklyn MI	Fred Marsh	Anna Miller, EPA
WB-100	5/29/2012	5/29/2012	Reopened Permit Process for Proposed West Bay #22 Underground Inj.	Eric Johnson	Anna Miller, EPA
WB-101	5/29/2012	5/29/2012	comment on West Bay #22	Peter Bormuth	Anna Miller, EPA
WB-102	5/28/2012	5/28/2012	Re: RPublic [sic] Comments on U.S. Environmental Protection (EPA) Draft Permit #MI-075-2D-0009	John Weaver	Anna Miller, EPA
WB-103	5/30/2012	5/30/2012	Letter - Questions re: said proposed project	Dr. Steven Hoekman	Anna Miller, EPA
WB-104	5/30/2012	5/30/2012	Comment on West Bay #22 draft permit for an underground injection well (EPA #MI-075-2D-0009 [sic])	Robert and Eugenia Walsh	Anna Miller, EPA
WB-105	5/30/2012	5/30/2012	West Bay #22 Well Draft Permit No. MI-075-2D-0009	Richard R. Brown	Anna Miller, EPA
WB-106	5/31/2012	5/31/2012	Injection Well #22, Region 5	Catherine King	Anna Miller, EPA
WB-107	6/1/2012	6/1/2012	comment on #22 well draft permit Jackson County Michigan	John Kuschell	Anna Miller, EPA
WB-108	6/1/2012	6/1/2012	Comments re West Bay #22 -- EPA #MI-075-2D-0009	Nancy Shiffler, Mark Muhich Sierra Club	Anna Miller, EPA
WB-109	6/1/2012	6/1/2012	Injection Well #22	William King	Anna Miller, EPA
WB-110	6/1/2012	6/1/2012	responding to WestBay [sic] waste disposal well in Norvell Township Permit #MI-75-2D-0009	Pamela Bacon	Anna Miller, EPA
WB-111	6/1/2012	6/1/2012	West Bay #22 Permit application	Dr. Victoria Powell	Anna Miller, EPA
WB-112	6/1/2012	6/1/2012	Comments on West Bay #22 injection Well Permit Application	Mitchell Rohde	Anna Miller, EPA
WB-113	5/23/2012	6/1/2012	Registered Written Comments from Donna Marsh, Reiki Master	Donna Marsh	Anna Miller, EPA
WB-114	5/27/2012	6/1/2012	Re: West Bay Permit #22 for Injection well to disposal [sic] gas & oil waste (brine)	Fred Marsh	Anna Miller, EPA
WB-115	6/1/2021	6/4/2012	Letter: Water Quality and Injection Well Questions	Pam Anderson	Anna Miller (on envelope), EPA
WB-116	6/1/2021	6/4/2012	Letter: "Please deny the west Bay #22..."	Sandra K. Yerman	Anna Miller et al, EPA

III. Tape or Transcript of First Public Hearings (40 C.F.R. § 124.18(b)(2)) May 23, 2012

WB-117	5/23/2012	6/8/2012	FINAL - Public Hearing 05-23-12	Jane Rose Reporting	Dana Rzeznik, EPA
WB-118	5/23/2012	5/23/2012	Public Hearing sign-in sheets	NA	NA

IV. Written Materials Submitted at Public Hearings (40 C.F.R. § 124.18(b)(3))

WB-119	undated	5/23/2012	"I AM FOR RAISING AWARENESS..."(half-sheet)	Donna Marsh	none
WB-120	5/22/2012	5/23/2012	NO to injection well permit, Irish Hills	Bernard Coyne	Anna Miller, EPA

Doc ID	Date of doc	Date received	Title/Description/Subject	Author/sender	Addressee
WB-121	5/22/2012	5/23/2012	EPA permit to West Bay #22 (printed email)		Anna Miller, EPA
WB-122	5/15/2012	5/23/2012	Greetings (letter)	George SanFacon	none
WB-123	5/23/2012	5/23/2012	Comment on West Bay #22 Well draft permit	Franziska B. van der Schalie	none

V. Response to Comments (40 C.F.R. § 124.18(b)(4))

a. Response to comments - first comment period 1/20/12- 2/21/12 (Interim response) and other correspondence on how to comment

WB-124	2/6/2012	2/6/2012	Re: Proposed injection site (how to comment)	Anna Miller, EPA	Timothy Porter
WB-125	2/22/2012	NA	Public Comments on U.S. EPA Draft Permit #MI-075-2D-0009 (letter)	Anna Miller, EPA	list of multiple recipients, attached in file
WB-126	2/22/2012	NA	Public Comments on U.S. EPA Draft Permit #MI-075-2D-0009 (email)	Anna Miller, EPA	multiple recipients
WB-127	3/9/2012	NA	Public Comments on U.S. EPA Draft Permit #MI-075-2D-0009 (letter)	Anna Miller, EPA	Sandra Duncan-Harris
WB-128	5/25/2012	NA	Enclosed copies of fact sheet (letter)	Anna Miller, EPA	Sandra Yerman

b. Response to comments - second comment period 4/17/12 - 6/1/12 (40 C.F.R. § 124.18(b)(4))

WB-129	12/6/2012	NA	Response to Comments on West Bay #22, U.S. EPA Draft Permit #MI-075-2D-0009	EPA	List of recipients, in file
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c. Additional documents cited in the first response to comments (40 C.F.R. § 124.17(b) and § 124.18(b)(4))

WB-130	NA	NA	Sass, I. and U. Burbaum (2010) Damage to the historic town of Staufien (Germany) caused by geothermal drillings through anhydrite-bearing	NA	NA
WB-131	NA	NA	Sievert, A, A. Wolter, N. Singh (2005) Hydration of anhydrite of gypsum (CASO4II) in a ball mill. Cement and Concrete Research, Vol. 35, pp.623-630	NA	NA
WB-132	NA	NA	Hardie, L. (1967) The gypsum-anhydrite equilibrium at one atmosphere pressure. American Mineralogist, Vol. 52, pp.171-200	NA	NA
WB-133	NA	NA	Conley, R.F. and W.M. Bundy (1958) Mechanism of gypsification. Geochimica et Cosmochimica Acta, Vol. 15, pp. 57-72 (abstract)	NA	NA
WB-134	NA	NA	Murray, R.C. (1964) Origin and Diagenesis of gypsum and anhydrite. Journal of Sedimentary Petrology Vol. 34, pp. 512-523 (abstract)	NA	NA
WB-135	NA	NA	Ogniben, L. (1955) Inverse graded bedding in primary gypsum of chemical deposition. Journal of Sedimentary Petrology Vol. 25, pp. 273-281 (abstract)	NA	NA
WB-136	NA	NA	Zone of influence calculations	NA	NA
WB-137	NA	NA	Region 5 guidance, entitled Example: Underground Injection Control Class II Permit Application. (publicly available at http://www.epa.gov/region5/water/uic/forms/act-samp.pdf)	NA	NA

VI. All Comments Received During the Public Comment Period (40 C.F.R. § 124.18(b)(1))

a. Comments Received During the First Public Comment Period 10/16/2014 - 11/24/2014 (40 C.F.R. § 124.18(b)(1))

WB-186	11/23/2014	11/24/2014	Email Comment (Title: Comments on Draft Injection Well Permit West Bay #22)	Sylvia Kay	Jeffrey Wawczak, EPA
WB-187	11/23/2014	11/24/2014	Email Comment (Title: Comments Regarding permit #22) (Attachment)	Pam Anderson	Jeffrey Wawczak, EPA
WB-188	11/23/2014	11/24/2014	Attachment to Email: EPA letter.docx	Pam Anderson	Jeffrey Wawczak, EPA
WB-189	11/23/2014	11/24/2014	Email Comment (Title: Comments regarding permit #22)	Lauren M. Smith, M.S.	Jeffrey Wawczak, EPA
WB-190	11/20/2014	11/21/2014	Email Comment (Title: Deep injection well failure rates)	Jay (John) Minar	Jeffrey Wawczak, EPA
WB-191	10/24/2014	10/31/2014	Comment Letter	Mr. and Mrs. D.J. Holek	Jeffrey Wawczak, EPA
WB-192	10/20/2014	11/10/2014	Email Comment (Title: RE: UIC Class II public notice)	Timothy Porter	Lilly Simmons, EPA
WB-193	11/21/2014	11/21/2014	Email Comment (Title: Comments regarding permit #22 request by West Bay Exploration Company)	Karl Jespen	Jeffrey Wawczak, EPA
WB-194	11/24/2014	11/24/2014	Email Comment (Title: West Bay #22 Well Draft Permit)	Tim Koclewijn	Jeffrey Wawczak, EPA
WB-195	11/24/2014	11/24/2014	Email Comment (Title: West Bay #22 Well Draft Permit)	Laura Watkins	Jeffrey Wawczak, EPA
WB-196	11/24/2014	11/26/2014	Re: West Bay Exploratiohn Co/ EPQA Public Hearing On Nov. 20, 2014 ADD All These Comments to the Record	Sandra Yerman	Jeffery Wawczak, ET AL, EPA

III. Tape or Transcript of First Public Hearings (40 C.F.R. § 124.18(b)(2)) November 20, 2014

WB-197	11/20/2014	NA	Sign-In Sheets (West Bay #22 Hearing, Brooklyn Michigan)	U.S. EPA	NA
WB-198	NA	12/4/2015	Jane Rose Reporting (Transcripts from West Bay #22 Hearing)	Jane Rose Reporting	U.S. EPA

IV. Written Materials Submitted at Public Hearings (40 C.F.R. § 124.18(b)(3))

WB-199	11/20/2014	11/20/2014	Scientific Papers, Articles, & Permits Referenced During Pubic Comments on West Bay #22 (23 Attachements)	Peter Bormuth	Jeffrey Wawczak, EPA
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Doc ID	Date of doc	Date received	Title/Description/Subject	Author/sender	Addressee
WB-200	1986	11/20/2014	Attachment #1: Bell; Cripps; Culshaw, Groundwater in Engineering Geology, London (1986) A REVIEW OF THE ENGINEERING BEHAVIOR OF SOILS AND ROCKS WITH RESPECT TO GROUNDWATER	F.G. Bell, J.C. Cripps & M.G. Culshaw	1/27/2016 NA
WB-201	February, 1958	11/20/2014	Attachment #2: Conley; Bundy, Geochimica et Cosmochimica Acta, v. 15 (1958)- MECHANISM OF GYPSIFICATION	R.F. Conley & W.M. Bundy	NA
WB-202	12/1/2011	11/20/2014	Attachment #3: EPA Document# 600/R-00/000 (December 2011)- INVESTIGATION OF GROUND WATER CONTAMINATION NEAR PAVILLION WYOMING	U.S. EPA	NA
WB-203	1/25/2012	11/20/2014	Attachment #4: EPA DRAFT REPORT OF GROUNDWATER CONTAMINATION NEAR PAVILION WYOMING, (January 25, 2012)	U.S. EPA	NA
WB-204	6/14/2006	11/20/2014	Attachment #5: EPA, Permit# MI-163-3G-A002, Sunoco Inkster Facility. (June 14, 2006).	U.S. EPA	NA
WB-205	January-February 1967	11/20/2014	Attachment #6: Hardie, The American Mineralogist_ Vol. 52, (January February 1967)- THE GYPSUMANHYDRITE EQUILBRIUM AT ONE ATMOSPHERE PRESSURE	Lawrence A. Hardie	NA
WB-206	9/1/1985	11/20/2014	Attachment 7: James; Edworthy, Hydrological Sciences, Journal, 30, 3, (September 1985) -THE EFFECTS OF WATER INTERACTIONS ON ENGINEERING STRUCTURES	A.N. James & K.J. Edworthy	NA
WB-207	4/1/2014	11/20/2014	Attachment #8: Jaworski, InTech: Advances in Crystallization Processes, (April 2012), - CRYSTALLIZATION, ALTERATION AND RECRYSTALLIZATION OF SULPHATES	Joanna Jaworska	NA
WB-208	1996	11/20/2014	Attachment #9: Klimchouk, International Journal of Speleology, 25, (1996) - THE DISSOLUTION AND CONVERSION OF GYPSUM AND ANHYDRITE.	Alexander Klimchouk	NA
WB-209	6/3/1988	11/20/2014	Attachment #10: Kreitler, Journal of Hydrology, 106 (1989)- HYDROGEOLOGY OF SEDIMENTARY BASINS	Charles W. Kreitler	NA
WB-210	5/18/2006	11/20/2014	Attachment #11: Middleton; WHAT LIES BENEATH: THE THREAT FROM OILFIELD WASTE INJECTION WELLS, published May 18, 2006	Rusty Middleton	NA
WB-211	September, 1964	11/20/2014	Attachment #12: Murray, Journal of Sedimentary Petrology, Vol. 34, No. 3 (September 1964)- ORIGIN AND DIAGENESIS OF GYPSUM AND ANHYDRITE	R.C. Murray	NA
WB-212	April, 2012	11/20/2014	Attachment #13: Myers, Ground Water, (April 2012) POTENTIAL CONTAMINANT PATHWAYS FROM HYDRAULICALLY FRACTURED SHALE TO AQUIFERS)	Tom Myers	NA
WB-213	2006	11/20/2014	Attachment #14: Rauh; Thuro, Engineering Geology, Technische Univer sitat Munchen, Germany (2006), INVESTIGATIONS ON THE SWELLING BEHAVIOR OF PURE ANHYDRITES	F. Rauh & K. Thuro	NA
WB-214	2010	11/20/2014	Attachment #15: Sass; Burbaum, ACTA Carsologica 39/2 Postonjna (2010)- DAMAGE TO THE HISTORIC TOWN OF STAUFEN (GERMANY) CAUSED BY GEOTHERMAL FRILLING\$ THROUGH ANHYDRITE-BEARING FORMATIONS).	Ingo Sass & Ulrich Burbaum	NA
WB-215	January, 2005	11/20/2014	Attachment #16: Singh, Amer. Ceram. Soc. Vol. 88 (January 2005)- EFFECT OF ACTIVATOR K2S04 ON THE HYDRATION OF ANHYDRITE OF GYPSUM (CA\$04.11)	N.B. Singh	NA
WB-216	1993	11/20/2014	Attachment #17: Steiner, International Journal of Rock Mechanics and Mining Sciences & Geomechanics Abstracts, 30, 4, {1993}- SWELLING ROCK IN TUNNELS	W. Steiner	NA
WB-217	1999	11/20/2014	Attachment #18: Suthersan, CPR Press LLC, (1999) HYDRAULIC AND PNEUMATIC FRACTURING	Ed Suthan & S. Suthersan	NA
WB-218	5/10/2012	11/20/2014	Attachment #19: Warner; Jackson; Darrah; Osborn; Down; Zhao; White; Vengosh . Proceedings of the National " Academy of Sciences, (May 2012) GEOCHEMICAL EVIDENCE FOR POSSIBLE NATURAL MIGRATION OF MARCELLUS FORMATION BRINE TO SHALLOW AQUIFERS IN PENNSYLVANIA	Nathaniel R. Warner, Robert B. Jackson, Thomas H. Darrah, Stephen G. Osborn, Adiran Down, Kaiguang Zhao, Alissa White, & Avner Vengosh	NA
WB-219	Jun, 1995	11/20/2014	Attachment #20: Weaver; Frappe; Cherry, Geo/. Soc. Am. Bull. 107 (1995)- RECENT CROSS-FORMATIONAL FLUID FLOW AND MIXING IN THE SHALLOW MICHIGAN BASIN	T. R. Weaver, S.K. Frappe & J.A. Cherry	NA
WB-220	4/7/2012	11/20/2014	Attachment #21: Wikipedia: Anhydrite	Unknown	NA

Doc ID	Date of doc	Date received	Title/Description/Subject	Author/sender	Addressee
WB-221	NA	11/20/2014	Attachment #22: Wikipedia : Benzene, Ethylbenzene, Toluene, Xylene, Naphthalene, & Polycyclic Aromatic Hydrocarbons	Unknown	1/27/2016 NA
WB-222	1965	11/20/2014	Attachment #23: Zen, Journal of Petrology, Vol. 6, Part 1, (1965) - SOLUBILITY MEASUREMENTS IN THE SYSTEM CaSO4-NaCl-H2O at 35, 50, & 70 degrees C and ONE ATMOSPHERE PRESSURE	E-AN Zen	NA

V. Response to Comments (40 C.F.R. § 124.18(b)(4))

a. Response to comments - first comment period 10/16/2014 - 11/24/2014 and other correspondence on how to comment

WB-224	12/8/2015	NA	RESPONSE TO PUBLIC COMMENTS, U.S. ENVIRONMENTAL PROTECTION AGENCY (EPA) UNDERGROUND INJECTION CONTROL (UIC) PERMIT # MI-075-2D-0009, WEST BAY EXPLORATION COMPANY, WEST BAY #22 SWD WELL JACKSON COUNTY, MICHIGAN	Jeffery Wawczak	West Bay #22 Commentors
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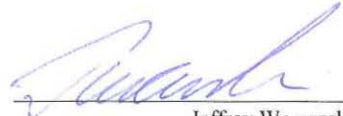
VI. Other Records in the Supporting File for the Permit (40 C.F.R. § 124.18(b)(6))

WB-138	12/6/2012	NA	Cover Letter to West Bay Corporation	Stephen Jann, EPA	West Bay Exploration
WB-139	12/6/2012	NA	Final Permit (Withdrawn)	Tinka Hyde, EPA	West Bay Exploration
WB-140	4/8/2013	NA	Withdrawal of Permit by Regional Administrator, West Bay Exploration Company, Jackson County, Michigan Permit Number (MI-075-2D-0009) UIC Appeal Noxs. 13-01, 13-02	Tinka Hyde, EPA	West Bay Exploration, Commenters, & Mass Mailing Recipients

VII. Final Permit (40 C.F.R. § 124.18(b)(7))

WB-225	12/8/2015	NA	Cover Letter to West Bay Corporation	Stephen Jann, EPA	West Bay Exploration
WB-226	12/8/2015	NA	Final Permit	Tim Henry for Tinka Hyde, EPA	West Bay Exploration

I, Jeffrey Wawczak, permit writer for the Underground Injection Control Branch, Region 5, U.S.EPA certify that the administrative record for this permit decision is complete on 12/8/15. The administrative record includes, to the best of my knowledge, all documents required under 40 C.F.R. § 124.18. The above Administrative Record Index references all documents in the administrative record for this draft permit termination decision.


Jeffrey Wawczak, Permit Writer,
Underground Injection Control Branch, U.S. EPA Region 5

1/27/16
Date