

# Battelle

*The Business of Innovation*

505 King Avenue  
Columbus, Ohio 43201-2693  
(614) 424-6424 Fax (614) 424-5263

March 9, 2006

Mr. Mike McCann  
U.S. Nuclear Regulatory Commission  
Region III  
2443 Warrenville Road  
Suite 210  
Lisle, IL 60532-4352

Dear Mr. McCann:

Subject: Submittal of the December 2005 Groundwater Sampling Events Results at Battelle's West Jefferson North Site

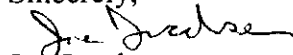
Enclosed are the laboratory reports for the results of the radiological analyses for the groundwater well samples collected in December 2005. The attached results represent the individual groundwater monitoring location results for the analyses of: gross alpha, gross beta, gamma spectroscopy, Sr-90, Pu, and U. Note that Attachment V and Attachment VI contains the data as well for the JN-1B Sump Wells (East and West Wells) which were sampled in December 2005 as well.

Wells 168, 601, and 506 were not available for sampling during the December 2005 sampling event for the following reasons:

- 168- Above ground metal casing area bent by heavy equipment enough could not get a bailer down for the sampling interval. Corrective action being taken to make this well available for the planned April 2006 sampling event
- 601- Compromised during the final stages of the JN-1 B Facility sub-surface work activities and will no longer be available for monitoring purposes. This was a shallow well of approximate 10 foot depth and our remediate area that compromised this well went down to the 15 foot level to get to a final status survey stage.
- 506- Not available to the sampling technician due to site work in progress at that time. We plan on sampling this well during the April 2006 sampling event.

If you have any questions or comments please do not hesitate to call me at 614-424-4098.

Sincerely,



Joe Jacobsen

BCLDP Radiation Safety Officer

ATTACHMENTS: I-VI

RECEIVED MAR 13 2006

*A Hechman I*  
**Ohio Department of Health, Division of Prevention**  
**ODH Laboratory Report**



Bureau of Laboratories  
 1571 Perry Street  
 Columbus, OH 43201

Bob Taft, Governor  
 J. Nick Baird, M.D. Director of Health  
 William J. Becker D.O., Medical Director



Battelle (CustomerID# Battelle)  
 505 King Ave  
 Columbus OH 43201

Receive Date: 12/29/2005  
 This Report's Date: 1/20/2006  
 ODH-Lab Order#: R3781

Sample#	Collector:	Site:	Client #	
<b>R3781-01</b>	John Tholen	JN-Well North Supply		
	Collect Date: 12/9/2005		Matrix: Water	
Parameter	Result	Units	Analysis Date	Analyzed by
Alpha	<3	pCi/L	1/20/2006	SChung
Beta	<4	pCi/L	1/10/2006	R Shesky
Gamma Scan	Natural nuclides present see raw data	pCi/L	1/6/2006	SChung
Sr-90	<1	pCi/L	1/13/2006	SChung
Sr-Total	<1	pCi/L	1/13/2006	SChung

Sample#	Collector:	Site:	Client #	
<b>R3781-02</b>	John Tholen	JM-Well Middle Supply		
	Collect Date: 12/9/2005		Matrix: Water	
Parameter	Result	Units	Analysis Date	Analyzed by
Alpha	<3	pCi/L	1/20/2006	SChung
Beta	<4	pCi/L	1/10/2006	R Shesky
Gamma Scan	Natural nuclides present see raw data	pCi/L	1/6/2006	SChung
Sr-90	<1	pCi/L	1/13/2006	SChung
Sr-Total	<1	pCi/L	1/13/2006	SChung

Sample#	Collector:	Site:	Client #	
<b>R3781-03</b>	John Tholen	JS-Well South Supply		
	Collect Date: 12/9/2005		Matrix: Water	
Parameter	Result	Units	Analysis Date	Analyzed by
Alpha	3	pCi/L	1/20/2006	SChung
Beta	<4	pCi/L	1/10/2006	R Shesky
Gamma Scan	Natural nuclides present see raw data	pCi/L	1/6/2006	SChung
U-235	10 +/- 7 could be Ra-226	pCi/L	1/6/2006	SChung
Sr-90	<1	pCi/L	1/13/2006	SChung
Sr-Total	<1	pCi/L	1/13/2006	SChung

Chemistry Fax: (614) 752-9863  
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 E-mail: [SFonseca@gw.odh.state.oh.us](mailto:SFonseca@gw.odh.state.oh.us)

OEPA Analyst #'s  
 Steve Fonseca, 2483  
 Sang H Chung, 2934  
 Tom Pavlosky, 3074  
 Rita Shesky, 1407

OEPA Method #'s  
 Total Alpha, 222  
 Total Beta, 165  
 Radium-226, 169  
 Radium-228, 183  
 Radon-222, 223  
 Tritium, 198  
 Strontium, 196  
 Uranium-Nat, 184  
 Gamma, 207

Attn: John Tholen  
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Ohio Department of Health, Division of Prevention  
ODH Laboratory Report



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Receive Date: 1/11/2006  
This Report's Date: 2/9/2006  
ODH-Lab Order#: R3794

**Sample# R3794-01** Collector: John Tholen Site: WELL 100 Client #  
Collect Date: 12/16/2005 Matrix: Water

Parameter	Result	Units	Analysis Date	Analyzed by
Alpha	5	pCi/L	1/20/2006	SChung
Beta	6	pCi/L	1/25/2006	R Shesky
Cs-134	5.4 +/- 1.6	pCi/L	1/12/2006	Schung
Cs-137	7.2 +/- 2.1	pCi/L	1/12/2006	Schung
Gamma Scan	All other nuclides <LLD	pCi/L	1/12/2006	Schung
Sr-90	<1	pCi/L	1/24/2006	SChung

**Sample# R3794-03** Collector: John Tholen Site: WELL 118 Client #  
Collect Date: 12/16/2005 Matrix: Water

Parameter	Result	Units	Analysis Date	Analyzed by
Alpha	4	pCi/L	1/20/2006	SChung
Beta	<4	pCi/L	1/25/2006	R Shesky
Gamma Scan	Natural nuclide presents see raw data	pCi/L	1/12/2006	SChung
Sr-90	1	pCi/L	1/24/2006	SChung

**Sample# R3794-05** Collector: John Tholen Site: WELL 206 Client #  
Collect Date: 12/22/2005 Matrix: Water

Parameter	Result	Units	Analysis Date	Analyzed by
Alpha	<3	pCi/L	1/20/2006	SChung
Beta	<4	pCi/L	1/25/2006	R Shesky
Gamma Scan	All nuclides <LLD	pCi/L	1/14/2006	SChung
Sr-90	<1	pCi/L	1/24/2006	SChung

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Sang H Chung, 2934	Total Beta, 165
Tom Pavlosky, 3074	Radium-226, 169
Rita Shesky, 1407	Radium-228, 183
	Radon-222, 223
	Tritium, 198
	Strontium, 196
	Uranium-Nat, 184
	Gamma, 207

Attn: John Tholen  
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A. Heckman III

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<b>Sample# R3794-07</b>	Collector: John Tholen	Site: WELL 300	Client #	
	Collect Date: 12/27/2005		Matrix: Water	
Parameter	Result	Units	Analysis Date	Analyzed by
Alpha	5	pCi/L	1/20/2006	SChung
Beta	7	pCi/L	1/25/2006	R Shesky
Gamma Scan	All nuclides <LLD	pCi/L	1/14/2006	SChung
Sr-90	<1	pCi/L	1/24/2006	SChung

<b>Sample# R3794-09</b>	Collector: John Tholen	Site: WELL 306	Client #	
	Collect Date: 12/27/2005		Matrix: Water	
Parameter	Result	Units	Analysis Date	Analyzed by
Alpha	4	pCi/L	1/20/2006	SChung
Beta	<4	pCi/L	2/8/2006	Schung
Gamma Scan	All nuclides <LLD	pCi/L	1/18/2006	SChung
Sr-90	<1	pCi/L	1/24/2006	SChung

<b>Sample# R3794-11</b>	Collector: John Tholen	Site: WELL C03	Client #	
	Collect Date: 12/27/2005		Matrix: Water	
Parameter	Result	Units	Analysis Date	Analyzed by
Alpha	4	pCi/L	1/20/2006	SChung
Beta	36	pCi/L	2/8/2006	Schung
Gamma Scan	Natural nuclide presents see raw data	pCi/L	1/18/2006	SChung
Sr-90	<1	pCi/L	1/24/2006	SChung

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Radium-228, 183  
Radon-222, 223  
Tritium, 198  
Strontium, 196  
Uranium-Nat, 184  
Gamma, 207

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Sample#	Collector:	Site:	Client #	
R3794-13	John Tholen	WELL C09		
	Collect Date: 12/27/2005		Matrix: Water	
Parameter	Result	Units	Analysis Date	Analyzed by
Alpha	<3	pCi/L	1/20/2006	SChung
Beta	81	pCi/L	2/8/2006	SChung
Cs-134	1.9 +/- 1.6	pCi/L	1/19/2006	SChung
Gamma Scan	All other nuclides <LLD	pCi/L	1/19/2006	SChung
Sr-90	29	pCi/L	1/24/2006	SChung

Sample#	Collector:	Site:	Client #	
R3794-15	John Tholen	WELL C16		
	Collect Date: 12/22/2005		Matrix: Water	
Parameter	Result	Units	Analysis Date	Analyzed by
Alpha	<3	pCi/L	1/20/2006	SChung
Beta	6	pCi/L	2/8/2006	SChung
Gamma Scan	Natural nuclide presents see raw data	pCi/L	1/19/2006	SChung
Sr-90	<1	pCi/L		

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Rita Shesky, 1407

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Total Beta, 165	Strontium, 196
Radium-226, 169	Uranium-Nat, 184
Radium-228, 183	Gamma, 207
Radon-222, 223	

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A Nachment *II*

		Results and TPU (total propagated uncertainty)				
		Pu-238	Pu-239/240			
Battelle ID	ODH Lab#	pCi/L	pCi/L		Analysis Date	Analyzed by
JNB-1B East Well	R3772-03	<1	<1		3/3/2006	GEL
JNB-1B West Well	R3772-04	<1	<1		3/3/2006	GEL
JN-Well North Supply Well	R3781-04	<1	<1		3/3/2006	GEL
JM-Well Middle Supply Well	R3781-05	<1	<1		3/3/2006	GEL
JS-Well South Supply Well	R3781-06	<1	<1		3/3/2006	GEL
Well 100	R3794-02	<1	<1		3/3/2006	GEL
Well 118	R3794-04	<1	<1		3/3/2006	GEL
Well 206	R3794-06	<1	<1		3/3/2006	GEL
Well 300	R3794-08	<1	<1		3/3/2006	GEL
Well 306	R3794-10	<1	<1		3/3/2006	GEL
Well C03	R3794-12	<1	<1		3/3/2006	GEL
Well C09	R3794-14	<1	<1		3/3/2006	GEL
Well C16	R3794-16	<1	<1		3/3/2006	GEL
Method EPA 907.0 modified Alpha Spec Isotopic Plutonium in Water						
		U-233/234	U-235/236	U-238		
Battelle ID	ODH Lab#	pCi/L	pCi/L	pCi/L	Analysis Date	Analyzed by
JNB-1B East Well	R3772-03	2.25 +/- 0.47	0.155 +/- 0.088	1.52 +/- 0.35	2/28/2006	GEL
JNB-1B West Well	R3772-04	<1	<1	<1	2/28/2006	GEL
JN-Well North Supply Well	R3781-04	1.17 +/- 0.28	<1	<1	2/28/2006	GEL
JM-Well Middle Supply Well	R3781-05	1.56 +/- 0.34	<1	<1	2/28/2006	GEL
JS-Well South Supply Well	R3781-06	1.35 +/- 0.33	<1	<1	2/28/2006	GEL
Well 100	R3794-02	1.91 +/- 0.41	<1	1.57 +/- 0.36	2/28/2006	GEL
Well 118	R3794-04	1.48 +/- 0.33	<1	1.45 +/- 0.32	2/28/2006	GEL
Well 206	R3794-06	1.31 +/- 0.29	<1	<1	2/28/2006	GEL
Well 300	R3794-08	<1	<1	<1	2/28/2006	GEL
Well 306	R3794-10	1.01 +/- 0.26	<1	<1	2/28/2006	GEL
Well C03	R3794-12	2.3 +/- 0.48	<1	1.93 +/- 0.42	2/28/2006	GEL
Well C09	R3794-14	1.95 +/- 0.38	<1	2.03 +/- 0.40	2/28/2006	GEL
Well C16	R3794-16	1.12 +/- 0.30	<1	<1	2/28/2006	GEL
Method ASTM D 3972 Alpha Spec Isotopic Uranium in Water						

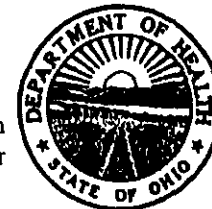
ATTACHMENT VI

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Receive Date: 12/16/2005  
This Report's Date: 1/9/2006  
ODH-Lab Order#: R3772

Sample#	Collector:	Site:	Client #	
R3772-01	John Tholen	JN-1B EAST WELL		
	Collect Date: 12/15/2005		Matrix: Water	
Parameter	Result	Units	Analysis Date	Analyzed by
Alpha	6	pCi/L	12/22/2005	SChung
Beta	175	pCi/L	12/21/2005	SChung
Gamma Scan	Natural nuclides present see raw data.	pCi/L	12/17/2005	R Shesky
Sr-90	56.9	pCi/L	1/6/2006	SChung

Sample#	Collector:	Site:	Client #	
R3772-02	John Tholen	JN-1B WEST WELL		
	Collect Date: 12/15/2005		Matrix: Water	
Parameter	Result	Units	Analysis Date	Analyzed by
Alpha	<3	pCi/L	12/22/2005	SChung
Beta	191	pCi/L	12/21/2005	SChung
Cs-137	4.05 +/- 1.34	pCi/L	12/17/2005	R Shesky
Gamma Scan	Natural nuclides present see raw data.	pCi/L	12/17/2005	R Shesky
Sr-90	57.9	pCi/L	1/6/2006	SChung

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