

**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

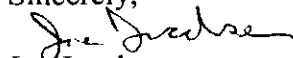
Enclosed are the laboratory reports for the results of the radiological analyses for the groundwater well samples collected in December 2005. The attached results represent the individual groundwater monitoring location results for the analyses of: gross alpha, gross beta, gamma spectroscopy, Sr-90, 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

*Attachment 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

<b>Sample# R3781-01</b>		Collector: John Tholen	Site: JN-Well North Supply	Client #
		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

<b>Sample# R3781-02</b>		Collector: John Tholen	Site: JM-Well Middle Supply	Client #
		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

<b>Sample# R3781-03</b>		Collector: John Tholen	Site: JS-Well South Supply	Client #
		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  
 URL: <http://www.ohio.gov/ohio/>

Voice: (614) 644-4633  
 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      Tritium, 198  
 Total Beta, 165      Strontium, 196  
 Radium-226, 169      Uranium-Nat, 184  
 Radium-228, 183      Gamma, 207  
 Radon-222, 223

Attn: John Tholen  
 Battelle  
 505 King Ave  
 Columbus OH 43201

# Ohio Department of Health, Division of Prevention

## ODH Laboratory Report



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



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

<b>Sample# R3794-01</b>		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	
<b>Sample# R3794-03</b>		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	
<b>Sample# R3794-05</b>		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  
Tom Pavlosky, 3074  
Rita Shesky, 1407

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Total Beta, 165  
Radium-226, 169  
Radium-228, 183  
Radon-222, 223  
Tritium, 198  
Strontium, 196  
Uranium-Nat, 184  
Gamma, 207

Attn: John Tholen  
Battelle  
505 King Ave  
Columbus OH 43201

*A. Heckman III*

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Receive Date: 1/11/2006  
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Sample# R3794-07	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

Sample# R3794-09	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

Sample# R3794-11	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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Rita Shesky, 1407	Radium-228, 183	Gamma, 207
	Radon-222, 223	

Attn: John Tholen  
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A. Heckman IV

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Receive Date: 1/11/2006  
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ODH-Lab Order#: R3794

<b>Sample# R3794-13</b>		Collector: John Tholen	Site: WELL C09	Client #	
		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	

<b>Sample# R3794-15</b>		Collector: John Tholen	Site: WELL C16	Client #	
		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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Sang H Chung, 2934	Total Beta, 165	Strontium, 196
Tom Pavlosky, 3074	Radium-226, 169	Uranium-Nat, 184
Rita Shesky, 1407	Radium-228, 183	Gamma, 207
	Radon-222, 223	

Attn: John Tholen  
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A Nachment  $\mathbb{I}$

		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

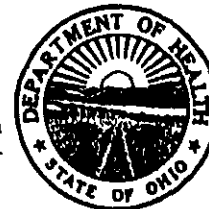
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Receive Date: 12/16/2005  
This Report's Date: 1/9/2006  
ODH-Lab Order#: R3772

<b>Sample# R3772-01</b>		Collector: John Tholen	Site: JN-1B EAST WELL	Client #
		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
<b>Sample# R3772-02</b>		Collector: John Tholen	Site: JN-1B WEST WELL	Client #
		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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