United States Nuclear Regulatory Commission Official Hearing Exhibit

In the Matter of: Entergy Nuclear Operations, Inc.
(Indian Point Nuclear Generating Units 2 and 3)

ASLBP #: 07-858-03-LR-BD01
Docket #: 05000247 | 05000286
Exhibit #: ENT00331G-00-BD01 **Identified:** 10/15/2012
Admitted: 10/15/2012 **Withdrawn:**
Rejected: **Stricken:**
Other:

REV. NO.	DESCRIPTION	BY	DATE

DESIGNED BY: DW
CHECKED BY: DW
REVIEWED BY: DW

DRAWN BY: EM/EMD/OCO
DATE: 01-04-2008

NOT TO SCALE

GZA GeoEnvironmental, Inc.
Engineers and Scientists
ONE EDGEWATER DRIVE
NORWOOD, MA 02062
(781) 278-5700
(781) 278-5701

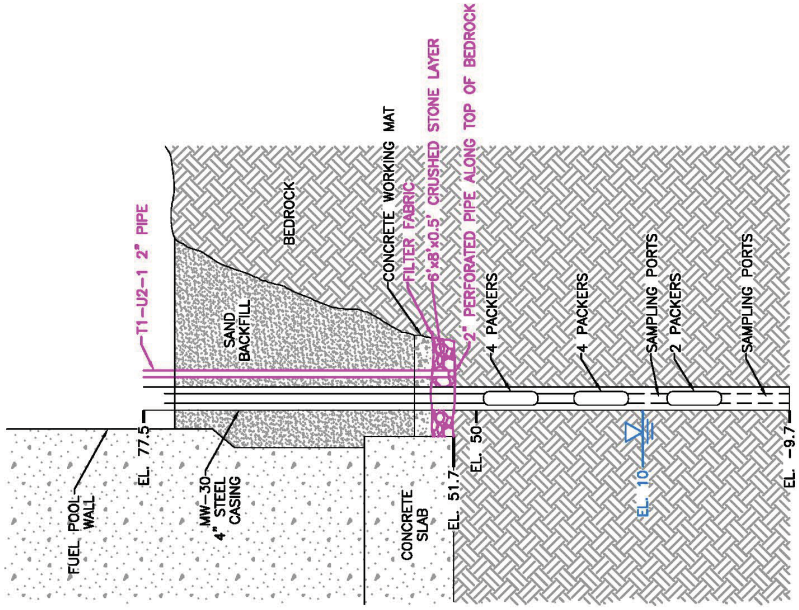
INDIAN POINT ENERGY CENTER
BUCHANAN, NEW YORK

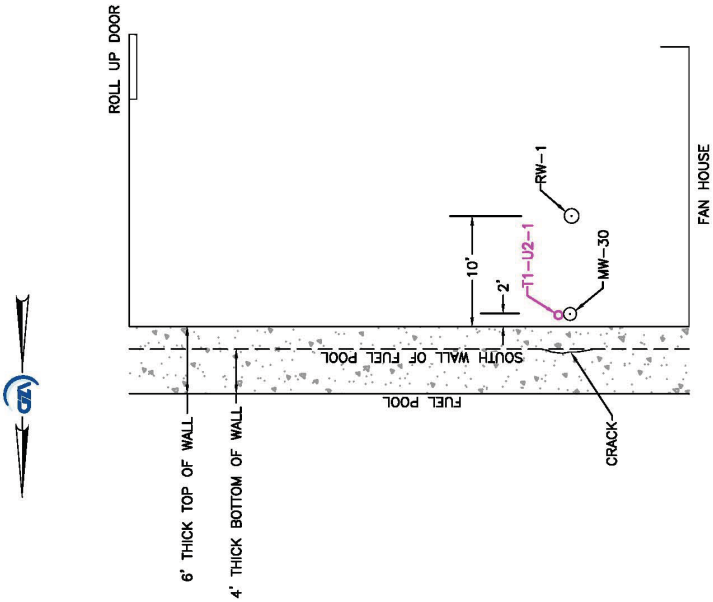
SCHEMATIC OF INJECTION WELL LOCATION AND DESIGN

JOB NO. 41.0017869.10

SHEET NO. **7.1**

ENT00331G
Submitted: March 29, 2012



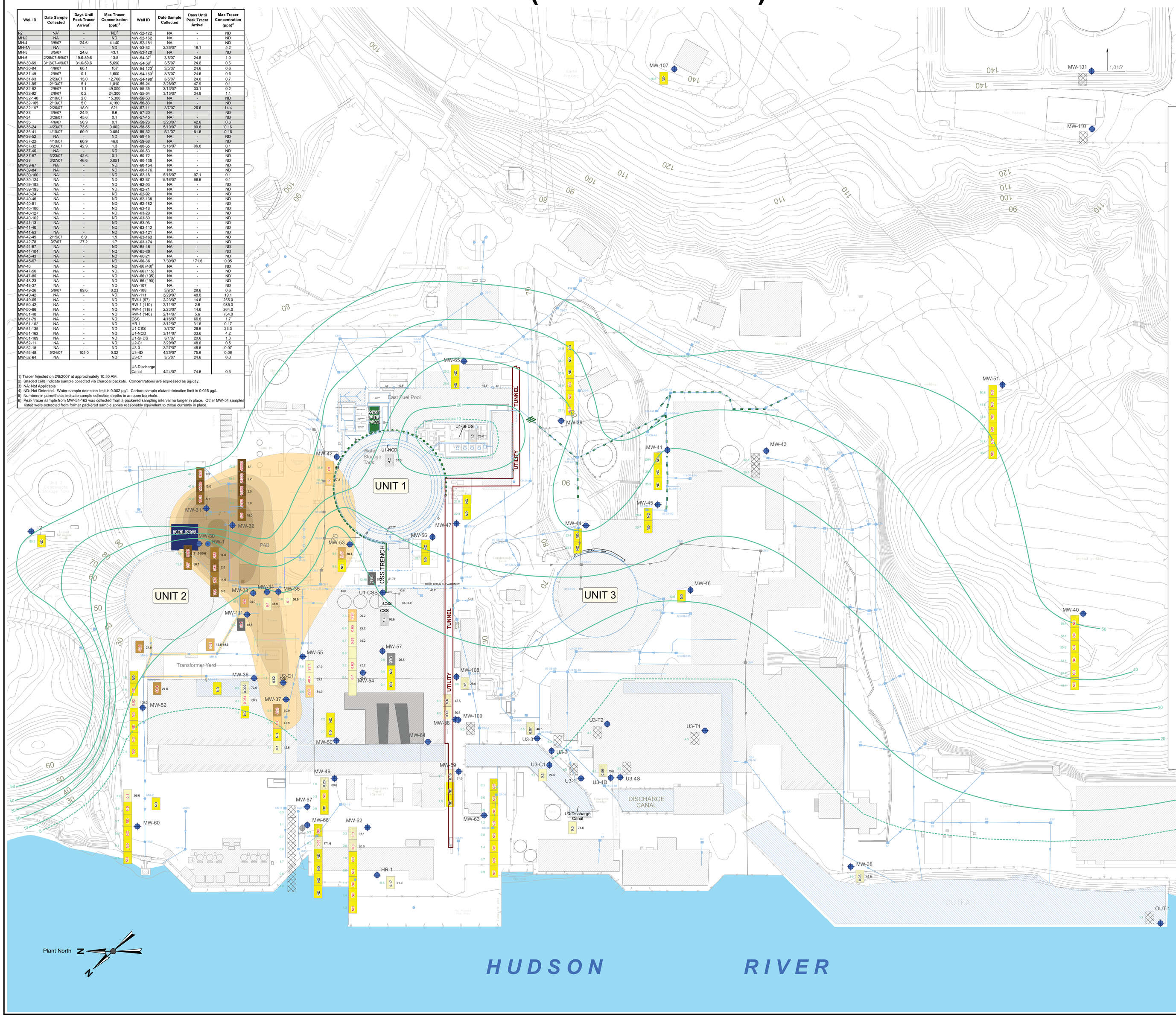


BOUNDING TRACER (FLUORESCEIN) CONCENTRATION ISOPLETHS[1]

Well ID	Date Sample Collected	Days Until Peak Tracer Arrival[1]	Max Tracer Concentration (ppb)[2]
I-2	NA[5]	-	ND[4]
MH-2	NA	-	ND
MH-4	3/5/07	24.6	41.40
MH-4A	NA	-	ND
MH-5	3/5/07	24.6	43.1
MH-6	2/28/07-5/9/07	19.6-89.6	13.8
MW-30-69	3/12/07-4/9/07	31.6-59.6	5,690
MW-30-84	4/9/07	60.1	167
MW-31-49	2/8/07	0.1	1,600
MW-31-63	2/23/07	15.0	12,700
MW-31-85	2/13/07	5.1	1,810
MW-32-62	2/9/07	1.1	49,000
MW-32-92	2/8/07	0.2	24,300
MW-32-140	2/10/07	2.0	15,300
MW-32-165	2/13/07	5.0	4,160
MW-32-197	2/26/07	18.0	621
MW-33	3/5/07	24.9	6.6
MW-34	3/26/07	45.6	0.1
MW-35	4/6/07	56.9	0.1
MW-36-24	4/23/07	73.6	0.002
MW-36-41	4/10/07	60.9	0.054
MW-36-52	NA	-	ND
MW-37-22	4/10/07	60.9	46.8
MW-37-32	3/23/07	42.9	1.3
MW-37-40	NA	-	ND
MW-37-57	3/23/07	42.6	0.1
MW-38	3/27/07	46.6	0.051
MW-39-67	NA	-	ND
MW-39-84	NA	-	ND
MW-39-100	NA	-	ND
MW-39-124	NA	-	ND
MW-39-183	NA	-	ND
MW-39-195	NA	-	ND
MW-40-24	NA	-	ND
MW-40-46	NA	-	ND
MW-40-81	NA	-	ND
MW-40-100	NA	-	ND
MW-40-127	NA	-	ND
MW-40-162	NA	-	ND
MW-41-13	NA	-	ND
MW-41-40	NA	-	ND
MW-41-63	NA	-	ND
MW-42-49	2/15/07	6.9	1.9
MW-42-78	3/7/07	27.2	1.7
MW-44-67	NA	-	ND
MW-44-104	NA	-	ND
MW-45-43	NA	-	ND
MW-45-67	NA	-	ND
MW-46	NA	-	ND
MW-47-56	NA	-	ND
MW-47-80	NA	-	ND
MW-48-23	NA	-	ND
MW-48-37	NA	-	ND
MW-49-26	5/9/07	89.6	0.23
MW-49-42	NA	-	ND
MW-49-65	NA	-	ND
MW-50-42	NA	-	ND
MW-50-66	NA	-	ND
MW-51-40	NA	-	ND
MW-51-79	NA	-	ND
MW-51-102	NA	-	ND
MW-51-135	NA	-	ND
MW-51-163	NA	-	ND
MW-51-189	NA	-	ND
MW-52-11	NA	-	ND
MW-52-18	NA	-	ND
MW-52-48	5/24/07	105.0	0.02
MW-52-64	NA	-	ND

Well ID	Date Sample Collected	Days Until Peak Tracer Arrival	Max Tracer Concentration (ppb)[2]
MW-52-122	NA	-	ND
MW-52-162	NA	-	ND
MW-52-181	NA	-	ND
MW-53-82	2/26/07	18.1	5.2
MW-53-120	NA	-	ND
MW-54-37[6]	3/5/07	24.6	1.0
MW-54-58[6]	3/5/07	24.6	0.6
MW-54-123[6]	3/5/07	24.6	0.6
MW-54-163[6]	3/5/07	24.6	0.6
MW-54-190[6]	3/5/07	24.6	0.7
MW-55-24	3/28/07	47.9	0.1
MW-55-35	3/13/07	33.1	0.2
MW-55-54	3/15/07	34.9	1.1
MW-56-53	NA	-	ND
MW-56-83	NA	-	ND
MW-57-11	3/7/07	26.6	14.4
MW-57-20	NA	-	ND
MW-57-45	NA	-	ND
MW-58-26	3/23/07	42.6	0.6
MW-58-65	5/10/07	90.6	0.16
MW-58-92	5/10/07	81.6	0.16
MW-59-45	NA	-	ND
MW-59-68	NA	-	ND
MW-60-35	5/16/07	96.6	0.1
MW-60-53	NA	-	ND
MW-60-72	NA	-	ND
MW-60-135	NA	-	ND
MW-60-154	NA	-	ND
MW-60-176	NA	-	ND
MW-62-18	5/16/07	97.1	0.1
MW-62-37	5/16/07	96.6	0.1
MW-62-53	NA	-	ND
MW-62-71	NA	-	ND
MW-62-92	NA	-	ND
MW-62-138	NA	-	ND
MW-62-182	NA	-	ND
MW-63-18	NA	-	ND
MW-63-29	NA	-	ND
MW-63-50	NA	-	ND
MW-63-93	NA	-	ND
MW-63-112	NA	-	ND
MW-63-121	NA	-	ND
MW-63-163	NA	-	ND
MW-63-174	NA	-	ND
MW-65-48	NA	-	ND
MW-65-80	NA	-	ND
MW-66-21	NA	-	ND
MW-66-36	7/30/07	171.6	0.05
MW-66 (48)[6]	NA	-	ND
MW-66 (115)	NA	-	ND
MW-66 (135)	NA	-	ND
MW-66 (190)	NA	-	ND
MW-107	NA	-	ND
MW-108	3/9/07	28.6	0.6
MW-111	3/29/07	48.6	19.1
RW-1 (97)	2/23/07	14.6	255.0
RW-1 (110)	2/11/07	2.6	985.0
RW-1 (118)	2/23/07	14.6	264.0
RW-1 (140)	2/14/07	5.6	754.0
CSS	4/16/07	66.6	1.7
HR-1	3/12/07	31.6	0.17
U1-CSS	3/7/07	26.6	23.3
U1-NCD	3/14/07	33.6	4.2
U1-SFDS	3/1/07	20.6	1.3
U2-C1	3/29/07	48.6	0.5
U3-3	3/27/07	46.6	0.07
U3-4D	4/25/07	75.6	0.06
U3-C1	3/5/07	24.6	0.3
U3-Discharge Canal	4/24/07	74.6	0.3

1) Tracer Injected on 2/8/2007 at approximately 10:30 AM.
2) Shaded cells indicate sample collected via charcoal packets. Concentrations are expressed as µg/day.
3) NA: Not Applicable
4) ND: Not Detected. Water sample detection limit is 0.002 µg/l. Carbon sample elutant detection limit is 0.025 µg/l.
5) Numbers in parenthesis indicate sample collection depths in an open borehole.
6) Peak tracer sample from MW-54-163 was collected from a packered sampling interval no longer in place. Other MW-54 samples listed were extracted from former packered sample zones reasonably equivalent to those currently in place.



GZA GeoEnvironmental, Inc.
One Edgewater Drive
Norwood, MA 02062
Phone: (781) 278-3700 Fax: (781) 278-5701

INDIAN POINT ENERGY CENTER
BUCHANAN, NEW YORK

BOUNDING TRACER (FLUORESCEIN) CONCENTRATION ISOPLETHS[1] IN GROUNDWATER

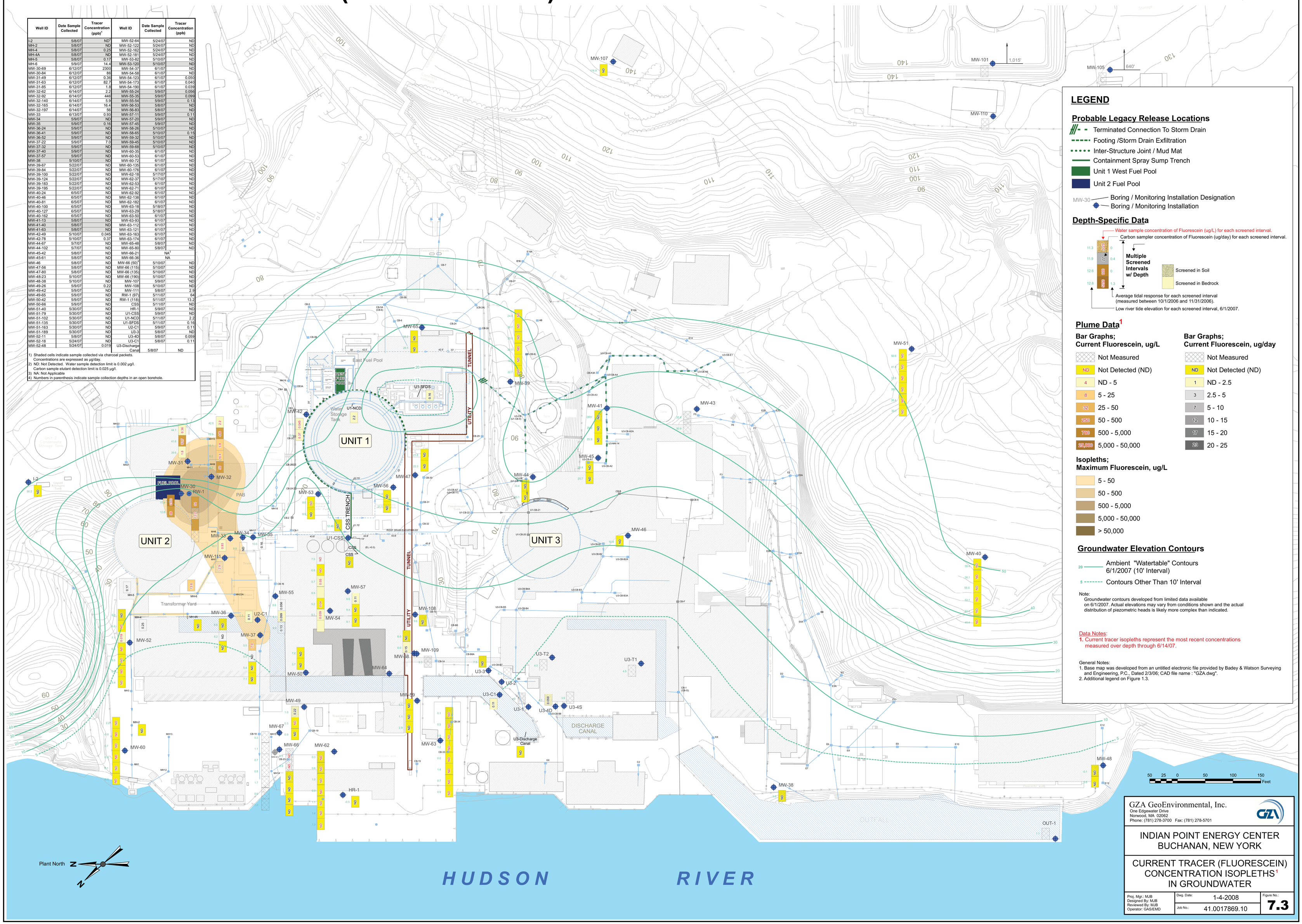
Proj. Mgr.: MJB Designed By: MJB Reviewed By: MJB Operator: GAS/EMD	Dwg. Date: 1-04-2008 Job No.: 41.0017869.10	Figure No.: 7.2

J:\17869\17869-10\Figures\GIS\MXD Documents\17869-10_7-2_Max_Tracer_v10.mxd

CURRENT TRACER (FLUORESCEIN) CONCENTRATION ISOPLETHS[1] IN GROUNDWATER

Well ID	Date Sample Collected	Tracer Concentration (ppb)[1]	Well ID	Date Sample Collected	Tracer Concentration (ppb)
I-2	5/8/07	ND[2]	MW-52-64	5/24/07	ND
MH-2	5/8/07	ND	MW-52-122	5/24/07	ND
MH-4	5/8/07	0.25	MW-52-162	5/24/07	ND
MH-4A	5/8/07	ND	MW-52-181	5/24/07	ND
MH-5	5/8/07	0.17	MW-53-82	5/10/07	ND
MH-6	5/9/07	14.4	MW-53-120	5/10/07	ND
MW-30-69	6/12/07	2300	MW-54-37	6/1/07	ND
MW-30-84	6/12/07	86	MW-54-58	6/1/07	ND
MW-31-49	6/12/07	0.36	MW-54-123	6/1/07	0.050
MW-31-63	6/12/07	82.7	MW-54-173	6/1/07	0.040
MW-31-85	6/12/07	1.8	MW-54-190	6/1/07	0.039
MW-32-62	6/14/07	2.2	MW-55-24	5/9/07	0.056
MW-32-92	6/14/07	446	MW-55-35	5/9/07	0.099
MW-32-140	6/14/07	5.9	MW-55-54	5/9/07	0.13
MW-32-165	6/14/07	16.4	MW-56-53	5/8/07	ND
MW-32-197	6/14/07	56	MW-56-83	5/8/07	ND
MW-33	6/13/07	0.93	MW-57-11	5/9/07	0.11
MW-34	5/9/07	ND	MW-57-20	5/9/07	ND
MW-35	5/9/07	0.16	MW-57-45	5/9/07	ND
MW-36-24	5/9/07	ND	MW-58-26	5/10/07	ND
MW-36-41	5/9/07	ND	MW-58-65	5/10/07	0.15
MW-36-52	5/9/07	ND	MW-59-32	5/10/07	ND
MW-37-22	5/9/07	7.0	MW-59-45	5/10/07	ND
MW-37-32	5/9/07	ND	MW-59-68	5/10/07	ND
MW-37-40	5/9/07	ND	MW-60-35	6/1/07	ND
MW-37-57	5/9/07	ND	MW-60-53	6/1/07	ND
MW-38	5/10/07	ND	MW-60-72	6/1/07	ND
MW-39-67	5/22/07	ND	MW-60-135	6/1/07	ND
MW-39-84	5/22/07	ND	MW-60-176	6/1/07	ND
MW-39-100	5/22/07	ND	MW-62-18	5/17/07	ND
MW-39-124	5/22/07	ND	MW-62-37	5/17/07	ND
MW-39-183	5/22/07	ND	MW-62-53	6/1/07	ND
MW-39-195	5/22/07	ND	MW-62-71	6/1/07	ND
MW-40-24	6/5/07	ND	MW-62-92	6/1/07	ND
MW-40-46	6/5/07	ND	MW-62-138	6/1/07	ND
MW-40-81	6/5/07	ND	MW-62-182	6/1/07	ND
MW-40-100	6/5/07	ND	MW-63-18	5/18/07	ND
MW-40-127	6/5/07	ND	MW-63-29	5/18/07	ND
MW-40-162	6/5/07	ND	MW-63-50	6/1/07	ND
MW-41-13	5/8/07	ND	MW-63-93	6/1/07	ND
MW-41-40	5/8/07	ND	MW-63-112	6/1/07	ND
MW-41-63	5/8/07	ND	MW-63-121	6/1/07	ND
MW-42-49	5/10/07	0.045	MW-63-163	6/1/07	ND
MW-42-78	5/10/07	0.37	MW-63-174	6/1/07	ND
MW-44-67	5/7/07	ND	MW-65-48	5/8/07	ND
MW-44-102	5/7/07	ND	MW-65-80	5/8/07	ND
MW-45-42	5/8/07	ND	MW-66-21	NA[4]	
MW-45-61	5/8/07	ND	MW-66-36	NA	
MW-46	5/8/07	ND	MW-66 (50)[3]	5/10/07	ND
MW-47-56	5/8/07	ND	MW-66 (115)	5/10/07	ND
MW-47-80	5/8/07	ND	MW-66 (135)	5/10/07	ND
MW-48-23	5/10/07	ND	MW-66 (190)	5/10/07	ND
MW-48-38	5/10/07	ND	MW-107	5/9/07	ND
MW-49-26	5/9/07	0.22	MW-108	5/10/07	ND
MW-49-42	5/9/07	ND	MW-111	5/8/07	2.9
MW-49-65	5/9/07	ND	RW-1 (97)	5/11/07	64
MW-50-42	5/9/07	ND	RW-1 (118)	5/11/07	13.2
MW-50-66	5/9/07	ND	CSS	5/11/07	ND
MW-51-40	5/30/07	ND	HR-1	5/9/07	ND
MW-51-79	5/30/07	ND	U1-CSS	5/9/07	ND
MW-51-102	5/30/07	ND	U1-NCD	5/11/07	2.2
MW-51-135	5/30/07	ND	U1-SFDS	5/11/07	0.16
MW-51-163	5/30/07	ND	U2-C1	5/9/07	0.11
MW-51-189	5/30/07	ND	U3-3	5/8/07	ND
MW-52-11	5/8/07	ND	U3-4D	5/8/07	0.059
MW-52-18	5/24/07	ND	U3-C1	5/8/07	0.11
MW-52-48	5/24/07	0.019	U3-Discharge Canal	5/8/07	ND

1) Shaded cells indicate sample collected via charcoal packets.
Concentrations are expressed as µg/day.
2) ND: Not Detected. Water sample detection limit is 0.002 µg/l.
Carbon sample elutant detection limit is 0.025 µg/l.
3) NA: Not Applicable
4) Numbers in parenthesis indicate sample collection depths in an open borehole.



GZA GeoEnvironmental, Inc.
One Edgewater Drive
Norwood, MA 02062
Phone: (781) 278-3700 Fax: (781) 278-5701

INDIAN POINT ENERGY CENTER
BUCHANAN, NEW YORK

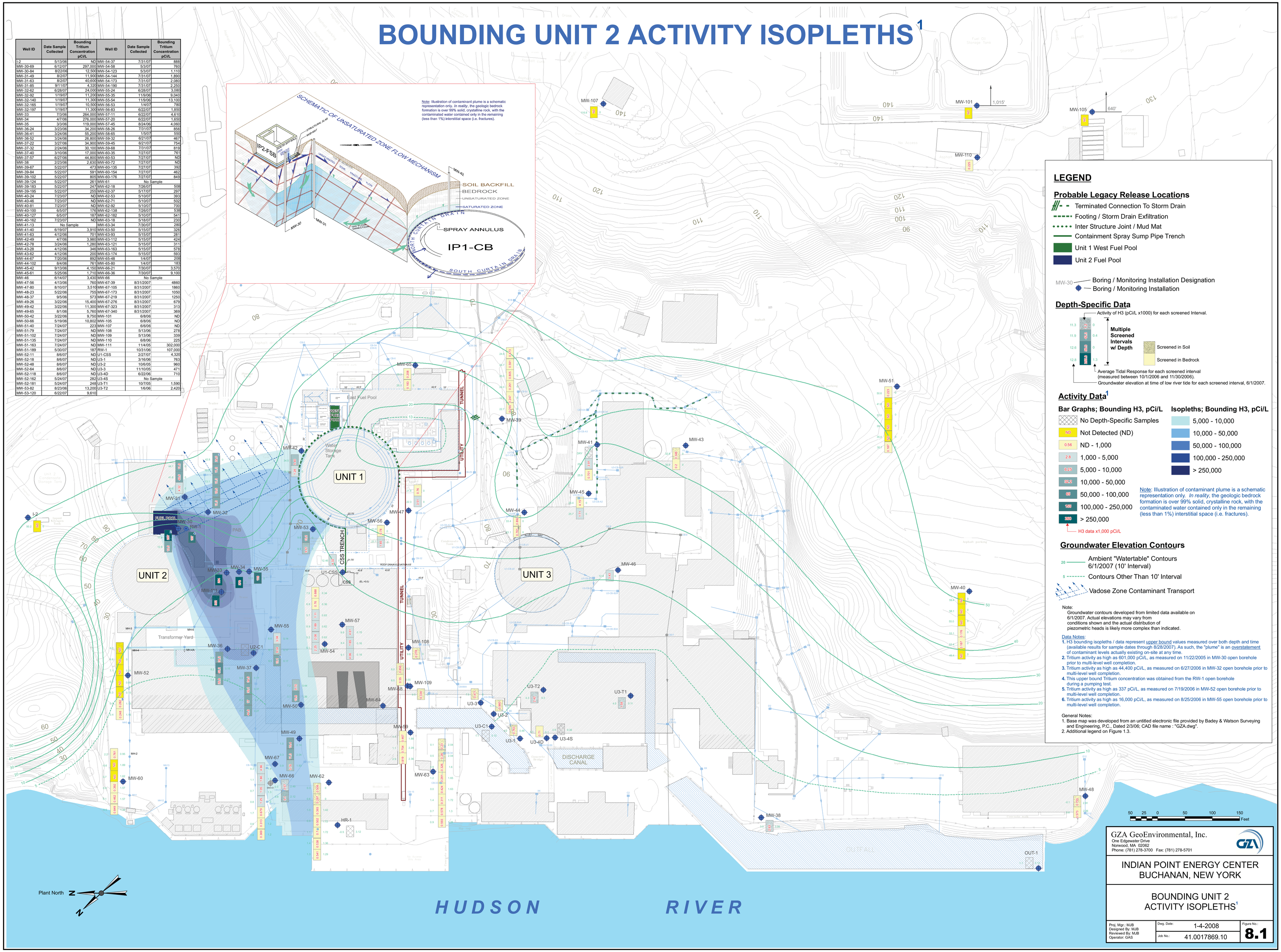
CURRENT TRACER (FLUORESCEIN) CONCENTRATION ISOPLETHS[1] IN GROUNDWATER

Proj. Mgr.: MJB Designed By: MJB Reviewed By: MJB Operator: GAS/EMD	Dwg. Date: 1-4-2008 Job No.: 41.0017869.10	Figure No.: 7.3

z:\17869-17869-10\Figures\GIS\MXD Documents\17869-10_7-3_Curr_Tracer_v10.mxd

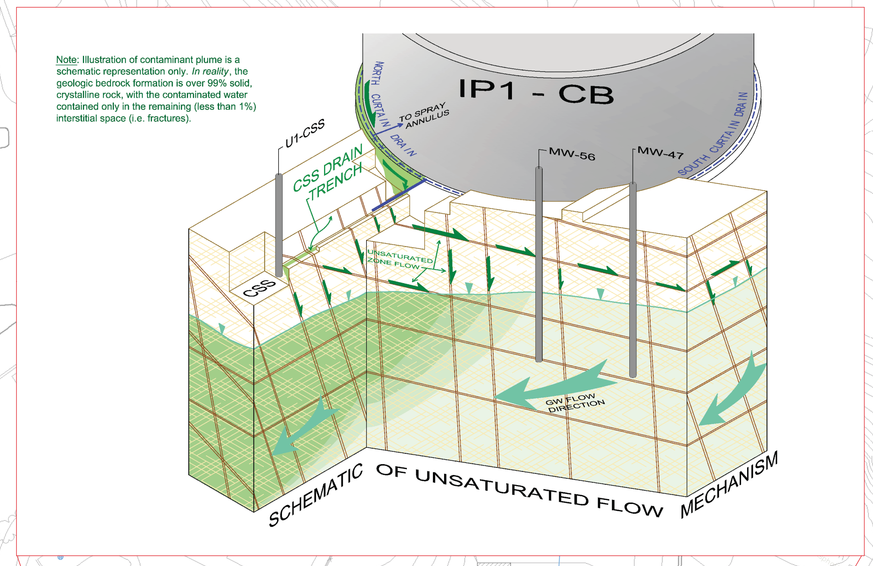
BOUNDING UNIT 2 ACTIVITY ISOPLETHS[1]

Well ID	Date Sample Collected	Bounding Tritium Concentration pCi/L	Well ID	Date Sample Collected	Bounding Tritium Concentration pCi/L
I-2	5/13/06	ND	MW-54-37	7/31/07	888
MW-30-69	6/12/07	297,000	MW-54-58	5/3/07	760
MW-30-84	8/22/06	12,500	MW-54-123	5/3/07	1,110
MW-31-49	9/2/07	11,900	MW-54-144	7/31/07	1,890
MW-31-63	8/2/07	40,600	MW-54-173	7/31/07	2,080
MW-31-85	9/11/07	4,320	MW-54-190	7/31/07	2,250
MW-32-62	6/28/07	24,000	MW-55-24	6/28/07	3,080
MW-32-92	1/19/07	11,200	MW-55-35	11/9/06	9,040
MW-32-140	1/19/07	11,300	MW-55-54	11/9/06	13,100
MW-32-165	1/19/07	10,500	MW-56-53	1/4/07	780
MW-32-197	1/19/07	11,300	MW-56-83	6/22/07	1,850
MW-33	7/3/06	264,000	MW-57-11	6/22/07	4,610
MW-34	4/7/06	276,000	MW-57-20	6/22/07	1,650
MW-35	3/3/06	119,000	MW-57-45	8/24/06	4,060
MW-36-24	3/23/06	34,200	MW-58-26	7/31/07	856
MW-36-41	3/24/06	55,200	MW-58-65	1/5/07	550
MW-36-52	3/24/06	26,800	MW-59-32	6/21/07	467
MW-37-22	3/27/06	34,900	MW-59-45	6/21/07	754
MW-37-32	2/24/06	30,100	MW-59-68	7/31/07	819
MW-37-40	3/10/06	17,000	MW-60-35	7/27/07	761
MW-37-57	6/27/06	44,800	MW-60-53	7/27/07	ND
MW-38	2/23/06	2,630	MW-60-72	7/27/07	ND
MW-39-67	5/22/07	473	MW-60-135	7/27/07	392
MW-39-84	5/22/07	591	MW-60-154	7/27/07	462
MW-39-102	5/22/07	805	MW-60-176	7/27/07	849
MW-39-124	5/22/07	261	MW-61	No Sample	
MW-39-183	5/22/07	247	MW-62-18	7/26/07	508
MW-39-195	5/22/07	255	MW-62-37	5/17/07	297
MW-40-24	7/23/07	ND	MW-62-53	5/10/07	393
MW-40-46	7/23/07	ND	MW-62-71	5/10/07	502
MW-40-81	7/23/07	ND	MW-62-92	5/10/07	700
MW-40-100	6/5/07	176	MW-62-138	7/26/07	538
MW-40-127	6/5/07	187	MW-62-182	5/10/07	541
MW-40-162	7/23/07	ND	MW-63-18	5/18/07	230
MW-41-13	No Sample		MW-63-34	7/30/07	286
MW-41-40	6/19/07	3,910	MW-63-50	5/15/07	326
MW-41-63	4/12/06	701	MW-63-93	5/15/07	281
MW-42-49	4/7/06	3,980	MW-63-112	5/15/07	424
MW-42-78	3/24/06	1,280	MW-63-121	5/15/07	311
MW-43-28	4/12/06	346	MW-63-163	5/15/07	578
MW-43-62	4/12/06	200	MW-63-174	5/15/07	593
MW-44-67	7/20/06	892	MW-65-48	1/4/07	208
MW-44-102	8/4/06	761	MW-65-80	1/4/07	183
MW-45-42	9/13/06	4,150	MW-66-21	7/30/07	3,570
MW-45-61	5/25/06	1,710	MW-66-36	7/30/07	9,100
MW-46	6/14/07	3,430	MW-66	No Sample	
MW-47-56	4/13/06	760	MW-67-39	8/31/2007	4860
MW-47-80	8/10/07	3,510	MW-67-105	8/31/2007	1860
MW-48-23	5/22/06	755	MW-67-173	8/31/2007	1050
MW-48-37	9/5/06	573	MW-67-219	8/31/2007	1250
MW-49-26	3/22/06	15,400	MW-67-276	8/31/2007	679
MW-49-42	3/22/06	11,300	MW-67-323	8/31/2007	313
MW-49-65	8/1/06	5,760	MW-67-340	8/31/2007	369
MW-50-42	3/22/06	9,750	MW-101	6/8/06	ND
MW-50-66	5/19/06	10,802	MW-105	6/8/06	ND
MW-51-40	7/24/07	223	MW-107	6/6/06	ND
MW-51-79	7/24/07	ND	MW-108	5/13/06	279
MW-51-102	7/24/07	ND	MW-109	5/13/06	339
MW-51-135	7/24/07	ND	MW-110	6/8/06	225
MW-51-163	7/24/07	ND	MW-111	11/4/05	302,000
MW-51-189	5/30/07	187	RW-1	10/31/06	107,000
MW-52-11	8/6/07	ND	U1-CSS	2/27/07	4,320
MW-52-18	8/6/07	ND	U3-1	3/16/06	763
MW-52-48	8/6/07	ND	U3-2	10/6/05	960
MW-52-64	8/6/07	ND	U3-3	11/10/05	471
MW-52-118	8/6/07	ND	U3-4D	6/22/06	710
MW-52-162	5/24/07	282	U3-4S	No Sample	
MW-52-181	5/24/07	248	U3-T1	10/7/05	1,590
MW-53-82	8/23/06	13,200	U3-T2	1/6/06	2,420
MW-53-120	6/22/07	9,610			



BOUNDING UNIT 1 ACTIVITY ISOPLETHS[1]

Well ID	Date Sample Collected	Bounding Strontium 90 Concentration pCi/L	Well ID	Date Sample Collected	Bounding Strontium 90 Concentration pCi/L
I-2	5/13/06	ND	MW-54-37	5/3/07	12.5
MW-30-69	11/29/06	2.5	MW-54-58	5/3/07	2.2
MW-30-84	1/17/07	ND	MW-54-123	5/3/07	21.9
MW-31-49	8/2/07	ND	MW-54-144	7/31/07	19.2
MW-31-63	8/2/07	ND	MW-54-173	5/3/07	20.9
MW-31-85	8/2/07	ND	MW-54-190	5/3/07	19.5
MW-32-62	8/13/07	ND	MW-55-24	8/2/07	23.1
MW-32-92	8/13/07	ND	MW-55-35	11/9/06	40.4
MW-32-140	8/13/07	ND	MW-55-54	11/9/06	22.8
MW-32-165	8/13/07	ND	MW-56-53	8/10/07	ND
MW-32-197	8/13/07	ND	MW-56-83	9/8/06	2.7
MW-33	6/7/06	0.7	MW-57-11	6/22/07	46.0
MW-34	8/3/07	ND	MW-57-20	6/22/07	2.0
MW-35	8/3/07	ND	MW-57-45	8/24/06	18.8
MW-36-24	4/5/08	1.6	MW-58-26	7/31/07	1.0
MW-36-41	4/5/08	3.5	MW-58-65	7/31/07	ND
MW-36-52	3/24/06	5.6	MW-59-32	7/31/07	ND
MW-37-22	8/7/07	18.3	MW-59-45	7/31/07	ND
MW-37-32	8/7/07	18.9	MW-59-68	7/31/07	ND
MW-37-40	6/27/07	24.4	MW-60-35	7/27/07	ND
MW-37-57	8/7/07	23.3	MW-60-53	7/27/07	ND
MW-38	2/12/07	ND	MW-60-72	7/27/07	ND
MW-39-67	8/7/07	4.8	MW-60-135	7/27/07	ND
MW-39-84	5/22/07	1.7	MW-60-154	7/27/07	ND
MW-39-102	5/22/07	1.3	MW-60-176	7/27/07	ND
MW-39-124	8/7/07	ND	MW-61	No Sample	
MW-39-183	8/7/07	ND	MW-62-18	7/26/07	ND
MW-39-195	5/22/07	1.3	MW-62-37	7/26/07	ND
MW-40-24	6/5/07	ND	MW-62-53	7/26/07	ND
MW-40-46	6/5/07	ND	MW-62-71	7/26/07	ND
MW-40-81	6/5/07	ND	MW-62-92	7/26/07	ND
MW-40-100	6/5/07	ND	MW-62-138	5/10/07	0.8
MW-40-127	6/5/07	ND	MW-62-182	7/26/07	ND
MW-40-162	6/5/07	ND	MW-63-18	7/30/07	ND
MW-41-13	No Sample		MW-63-29	7/30/07	ND
MW-41-40	7/14/06	7.0	MW-63-50	7/25/07	ND
MW-41-63	6/20/07	7.1	MW-63-93	7/25/07	ND
MW-42-49	4/7/06	110	MW-63-112	7/25/07	ND
MW-42-78	8/17/07	ND	MW-63-121	7/25/07	ND
MW-43-28	5/25/06	2.7	MW-63-163	7/25/07	ND
MW-43-62	6/12/06	1.3	MW-63-174	7/25/07	ND
MW-44-67	5/24/08	0.7	MW-65-48	1/4/07	ND
MW-44-102	8/14/07	ND	MW-65-80	1/4/07	ND
MW-45-42	4/4/06	1.0	MW-66-21	7/30/07	1.8
MW-45-61	11/13/06	1.7	MW-66-35	7/30/07	6.2
MW-46	4/12/06	0.6	MW-66	No Sample	
MW-47-56	4/13/06	2.3	MW-67-39	8/31/2007	18.6
MW-47-80	8/10/07	3.6	MW-67-105	8/31/2007	1.1
MW-48-23	2/9/07	ND	MW-67-173	8/31/2007	ND
MW-48-37	2/9/07	ND	MW-67-219	8/31/2007	ND
MW-49-26	3/22/06	18.4	MW-67-276	8/31/2007	ND
MW-49-42	8/9/07	25.6	MW-67-323	8/31/2007	ND
MW-49-65	8/9/07	20.6	MW-67-340	8/31/2007	ND
MW-50-42	5/19/06	19.5	MW-101	6/8/06	ND
MW-50-66	7/26/07	31.0	MW-105	6/8/06	ND
MW-51-40	7/24/07	ND	MW-107	6/6/06	ND
MW-51-79	7/24/07	ND	MW-108	5/13/06	ND
MW-51-102	7/24/07	ND	MW-109	5/13/06	ND
MW-51-135	7/24/07	ND	MW-110	6/8/06	ND
MW-51-163	7/24/07	ND	MW-111	5/17/06	2.5
MW-51-189	7/24/07	ND	RW-1	11/3/06	ND
MW-52-11	8/6/07	ND	U1-CSS	8/6/07	26.8
MW-52-18	8/6/07	ND	U3-1	6/22/06	ND
MW-52-48	8/6/07	ND	U3-2	6/22/06	1.4
MW-52-64	8/6/07	ND	U3-3	6/22/06	ND
MW-52-118	8/6/07	ND	U3-4D	6/22/06	ND
MW-52-162	8/6/07	ND	U3-4S	No Sample	
MW-52-181	8/6/07	ND	U3-T1	5/26/06	1.3
MW-53-82	8/30/06	6.7	U3-T2	5/26/06	1.5
MW-53-120	8/9/07	37.0			



LEGEND

Probable Legacy Release Locations

- Terminated Connection To Storm Drain
- Footing / Storm Drain Exfiltration
- Inter-Structure Joint / Mud Mat
- Containment Spray Sump Trench
- Unit 1 West Fuel Pool
- Unit 2 Fuel Pool
- MW-30 — Boring / Monitoring Installation Designation
- Boring / Monitoring Installation

Depth-Specific Data

Activity of Sr90 (pCi/L) for each screened interval.

Multiple Screened Intervals w/ Depth

Screened in Soil

Screened in Bedrock

Average Tidal Response for each screened interval (measured between 10/1/06 and 11/30/06).

Groundwater elevation at time of low river tide for each screened interval, 6/1/2007.

Activity Data[1]

Bar Graphs; Bounding Sr-90, pCi/L

- No Depth-Specific Samples
- ND — Not Detected (ND)
- 0.74 — ND - 1.0
- 1.7 — 1.0 - 2.0
- 2.86 — 2.0 - 4.0
- 5.5 — 4.0 - 8.0
- 14.1 — 8.0 - 25
- 48.4 — 25 - 75
- 110 — > 75

Isopleths; Bounding Sr-90, pCi/L

- 2 - 4
- 4 - 8
- 8 - 25
- 25 - 75
- > 75

Note: Illustration of contaminant plume is a schematic representation only. *In reality*, the geologic bedrock formation is over 99% solid, crystalline rock, with the contaminated water contained only in the remaining (less than 1%) interstitial space (i.e. fractures).

Groundwater Elevation Contours

- 20 — Ambient "Watertable" Contours 6/1/2007 (10' Interval)
- 5 — Contours Other Than 10' Interval
- Vadose Zone Contaminant Transport

Note:
Groundwater contours developed from limited data available on 6/1/2007. Actual elevations may vary from conditions shown and the actual distribution of piezometric heads is likely more complex than indicated.

Data Notes:
1. Sr-90 "bounding isopleths" / data represent upper bound values measured over both depth and time (available results for sample dates through 8/28/2007). As such, the "plume" is an overstatement of contaminant levels actually existing on-site at any time.
2. Sr-90 activity at MW-111 and MW-33 may be due to desorption of residual Sr-90 from backfill used in the Transformer Yard.
3. Sr-90 only detected in MW-30 during pumping test of RW-1 on 11/29/06.
4. A Sr-90 value of 0.9 was measured on 5/24/2006 in MW-31 open borehole.
5. Three discrete isopleths have been drawn around MW-39, 41, and 43 given measured concentrations greater than 2 pCi/L. It is expected that similar concentrations exist at other locations along the legacy piping alignment in addition to the locations shown.
6. The low Sr-90 concentrations measured in these wells are consistent with that expected due to residual levels remaining as the legacy plume has attenuated over time.

General Notes:
1. Base map was developed from an untitled electronic file provided by Badey & Watson Surveying and Engineering, P.C., Dated 2/3/06; CAD file name : "GZA.dwg".
2. Additional legend on Figure 1.3.

50 25 0 50 100 150 Feet

GZA GeoEnvironmental, Inc.
One Edgewater Drive
Norwood, MA 02062
Phone: (781) 278-3700 Fax: (781) 278-5701

INDIAN POINT ENERGY CENTER
BUCHANAN, NEW YORK

BOUNDING UNIT 1
ACTIVITY ISOPLETHS[1]

Proj. Mgr.: MJB Designed By: MJB Reviewed By: MJB Operator: GAS	Dwg. Date: 1-4-2008 Job No.: 41.0017869.10	Figure No.: 8.2

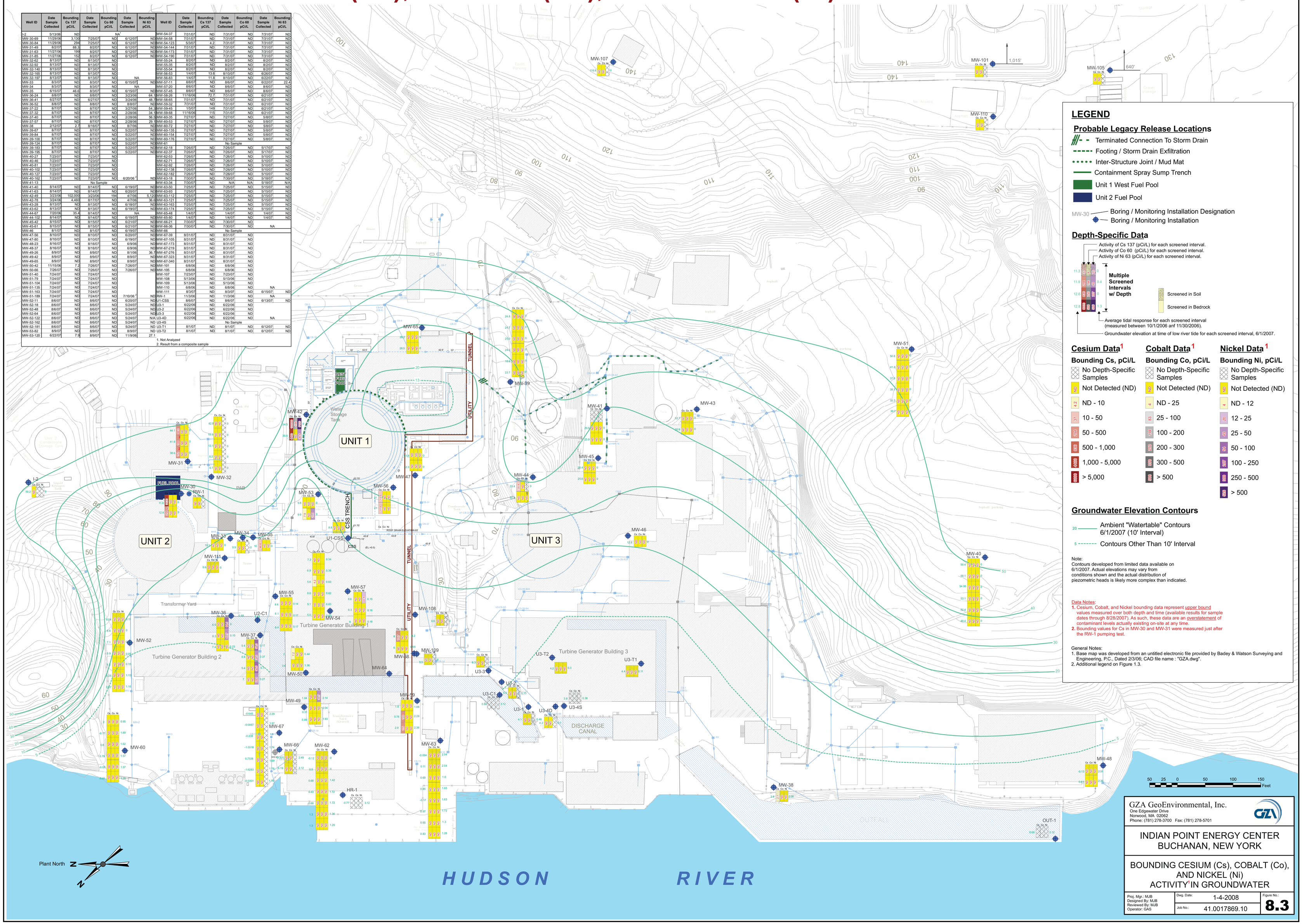
I:\17869\17869-10\Figures\GIS\MXD Documents\17869-10_8-2_Max_Sr_v10.mxd

BOUNDING CESIUM (Cs), COBALT (Co), AND NICKEL (Ni) ACTIVITY[1] IN GROUNDWATER

Well ID	Date Sample Collected	Bounding Cs 137 pCi/L	Date Sample Collected	Bounding Co 60 pCi/L	Date Sample Collected	Bounding Ni 63 pCi/L
I-2	5/13/06	ND		NA[1]		
MW-30-69	11/29/06	3,130	7/25/07	ND	6/12/07	ND
MW-30-84	11/29/06	294	7/25/07	ND	6/12/07	ND
MW-31-49	8/2/07	88.3	8/2/07	ND	6/12/07	ND
MW-31-63	11/27/06	199	8/2/07	ND	6/12/07	ND
MW-31-85	11/27/06	152	8/2/07	ND	6/12/07	ND
MW-32-62	8/13/07	ND	8/13/07	ND		
MW-32-92	8/13/07	ND	8/13/07	ND		
MW-32-140	8/13/07	ND	8/13/07	ND		
MW-32-165	8/13/07	ND	8/13/07	ND		
MW-32-197	8/13/07	ND	8/13/07	ND	NA	
MW-33	8/3/07	ND	8/3/07	ND	6/15/07	ND
MW-34	8/3/07	ND	8/3/07	ND	NA	
MW-35	6/15/07	46.6	8/3/07	ND	6/15/07	ND
MW-36-24	8/8/07	ND	8/8/07	ND	3/23/06	64.1
MW-36-41	6/27/07	ND	6/27/07	ND	3/24/06	48.7
MW-36-52	8/8/07	ND	8/8/07	ND	8/8/07	ND
MW-37-22	8/7/07	ND	8/7/07	ND	3/27/06	54.3
MW-37-32	8/7/07	ND	8/7/07	ND	2/28/06	34.1
MW-37-40	8/7/07	ND	8/7/07	ND	2/28/06	56.5
MW-37-57	8/7/07	ND	8/7/07	ND	2/28/06	29.1
MW-38	2/12/07	2.7	8/16/07	ND	8/7/06	ND
MW-39-67	8/7/07	ND	8/7/07	ND	5/22/07	ND
MW-39-84	8/7/07	ND	8/7/07	ND	5/22/07	ND
MW-39-100	8/7/07	ND	8/7/07	ND	5/22/07	ND
MW-39-124	8/7/07	ND	8/7/07	ND	5/22/07	ND
MW-39-183	8/7/07	ND	8/7/07	ND	5/22/07	ND
MW-39-195	8/7/07	ND	8/7/07	ND	5/22/07	ND
MW-40-27	7/23/07	ND	7/23/07	ND		
MW-40-46	7/23/07	ND	7/23/07	ND		
MW-40-81	7/23/07	ND	7/23/07	ND		
MW-40-102	7/23/07	ND	7/23/07	ND		
MW-40-127	7/23/07	ND	7/23/07	ND		
MW-40-162	7/23/07	ND	7/23/07	ND	6/20/06	ND
MW-41-13			No Sample			
MW-41-40	8/14/07	ND	8/14/07	ND	6/19/07	ND
MW-41-63	8/14/07	ND	8/14/07	ND	6/20/07	ND
MW-42-49	3/23/06	102,000	3/23/06	194	4/7/06	5,120
MW-42-78	3/24/06	4,460	8/17/07	ND	4/7/06	36.6
MW-43-28	8/13/07	ND	8/13/07	ND	6/18/07	ND
MW-43-62	8/13/07	ND	8/13/07	ND	6/19/07	ND
MW-44-67	7/20/06	35.4	8/14/07	ND	NA	
MW-44-102	8/14/07	ND	8/14/07	ND	6/19/07	ND
MW-45-42	8/15/07	ND	8/15/07	ND	6/21/07	ND
MW-45-61	8/15/07	ND	8/15/07	ND	6/21/07	ND
MW-46	8/1/07	ND	8/1/07	ND	6/19/07	ND
MW-47-56	8/10/07	ND	8/10/07	ND	6/20/07	ND
MW-47-80	8/10/07	ND	8/10/07	ND	6/19/07	ND
MW-48-23	8/16/07	ND	8/16/07	ND	6/9/06	ND
MW-48-37	8/16/07	ND	8/16/07	ND	6/9/06	ND
MW-49-26	8/9/07	ND	8/9/07	ND	8/1/06	36.7
MW-49-42	8/9/07	ND	8/9/07	ND	8/9/07	ND
MW-49-65	8/9/07	ND	8/9/07	ND	8/9/07	ND
MW-50-42	11/15/06	7.2	7/26/07	ND	7/26/07	ND
MW-50-66	7/26/07	ND	7/26/07	ND	7/26/07	ND
MW-51-40	7/24/07	ND	7/24/07	ND		
MW-51-79	7/24/07	ND	7/24/07	ND		
MW-51-104	7/24/07	ND	7/24/07	ND		
MW-51-135	7/24/07	ND	7/24/07	ND		
MW-51-163	7/24/07	ND	7/24/07	ND		
MW-51-189	7/24/07	ND	7/24/07	ND	7/10/06	ND
MW-52-11	8/6/07	ND	8/6/07	ND	6/20/07	ND
MW-52-18	8/6/07	ND	8/6/07	ND	5/24/07	ND
MW-52-48	8/6/07	ND	8/6/07	ND	5/24/07	ND
MW-52-64	8/6/07	ND	8/6/07	ND	5/24/07	ND
MW-52-122	8/6/07	ND	8/6/07	ND	5/24/07	N/A
MW-52-162	8/6/07	ND	8/6/07	ND	5/24/07	ND
MW-52-181	8/6/07	ND	8/6/07	ND	5/24/07	ND
MW-53-82	8/9/07	ND	8/9/07	ND	8/9/07	ND
MW-53-120	6/22/07	7.9	8/9/07	ND	11/9/06	27.1

Well ID	Date Sample Collected	Bounding Cs 137 pCi/L	Date Sample Collected	Bounding Co 60 pCi/L	Date Sample Collected	Bounding Ni 63 pCi/L
MW-54-37	7/31/07	ND	7/31/07	ND	7/31/07	ND
MW-54-58	7/31/07	ND	7/31/07	ND	7/31/07	ND
MW-54-123	5/3/07	4.2	7/31/07	ND	7/31/07	ND
MW-54-144	7/31/07	ND	7/31/07	ND	7/31/07	ND
MW-54-173	7/31/07	ND	7/31/07	ND	7/31/07	ND
MW-54-190	7/31/07	ND	7/31/07	ND	7/31/07	ND
MW-55-24	8/2/07	ND	8/2/07	ND	8/2/07	ND
MW-55-35	8/2/07	ND	8/2/07	ND	8/2/07	ND
MW-55-54	8/2/07	ND	8/2/07	ND	8/2/07	ND
MW-56-53	1/4/07	13.6	8/10/07	ND	6/26/07	ND
MW-56-63	1/4/07	11.8	8/10/07	ND	6/22/07	ND
MW-57-11	8/6/07	ND	8/6/07	ND	6/22/07	22.4
MW-57-20	8/6/07	ND	8/6/07	ND	8/6/07	ND
MW-57-45	8/6/07	ND	8/6/07	ND	8/6/07	ND
MW-58-26	11/16/06	72.7	7/31/07	ND	6/21/07	ND
MW-58-65	7/31/07	ND	7/31/07	ND	6/21/07	ND
MW-59-32	7/31/07	ND	7/31/07	ND	6/21/07	ND
MW-59-45	1/5/07	149	7/31/07	ND	6/21/07	ND
MW-59-68	11/16/06	115	7/31/07	ND	6/21/07	ND
MW-60-35	7/27/07	ND	7/27/07	ND	5/8/07	ND
MW-60-53	7/27/07	ND	7/27/07	ND	5/8/07	ND
MW-60-72	7/27/07	ND	7/27/07	ND	5/8/07	ND
MW-60-135	7/27/07	ND	7/27/07	ND	5/8/07	ND
MW-60-154	7/27/07	ND	7/27/07	ND	5/8/07	ND
MW-60-176	7/27/07	ND	7/27/07	ND	5/8/07	ND
MW-61			No Sample			
MW-62-18	7/26/07	ND	7/26/07	ND	5/17/07	ND
MW-62-37	7/26/07	ND	7/26/07	ND	5/17/07	ND
MW-62-53	7/26/07	ND	7/26/07	ND	5/10/07	ND
MW-62-71	7/26/07	ND	7/26/07	ND	5/10/07	ND
MW-62-92	7/26/07	ND	7/26/07	ND	5/10/07	ND
MW-62-138	7/26/07	ND	7/26/07	ND	5/10/07	ND
MW-62-182	7/26/07	ND	7/26/07	ND	5/10/07	ND
MW-63-18	7/30/07	ND	7/30/07	ND	5/18/07	ND
MW-63-34	7/30/07	ND	N/A	N/A	5/18/07	N/A
MW-63-50	7/25/07	ND	7/25/07	ND	5/15/07	ND
MW-63-93	7/25/07	ND	7/25/07	ND	5/15/07	ND
MW-63-112	7/25/07	ND	7/25/07	ND	5/15/07	ND
MW-63-121	7/25/07	ND	7/25/07	ND	5/15/07	ND
MW-63-163	7/25/07	ND	7/25/07	ND	5/15/07	ND
MW-63-174	7/25/07	ND	7/25/07	ND	5/15/07	ND
MW-65-48	1/4/07	ND	1/4/07	ND	1/4/07	ND
MW-65-80	1/4/07	ND	1/4/07	ND	1/4/07	ND
MW-66-21	7/30/07	ND	7/30/07	ND	NA	
MW-66-36	7/30/07	ND	7/30/07	ND		
MW-66			No Sample			
MW-67-39	8/31/07	ND	8/31/07	ND		
MW-67-105	8/31/07	ND	8/31/07	ND		
MW-67-173	8/31/07	ND	8/31/07	ND		
MW-67-219	8/31/07	ND	8/31/07	ND		
MW-67-276	8/31/07	ND	8/31/07	ND		
MW-67-323	8/31/07	ND	8/31/07	ND		
MW-67-340	8/31/07	ND	8/31/07	ND		
MW-101	6/8/06	ND	6/8/06	ND		
MW-105	6/8/06	ND	6/8/06	ND		
MW-107	7/23/07	ND	7/23/07	ND		
MW-108	5/13/06	ND	5/13/06	ND		
MW-109	5/13/06	ND	5/13/06	ND		
MW-110	6/8/06	ND	6/8/06	ND	NA	
MW-111	8/30/07	ND	8/30/07	ND	6/15/07	ND
RW-1	11/3/06	ND	11/3/06	ND	NA	
U1-CSS	8/9/07	ND	8/9/07	ND	6/13/07	ND
U3-1	6/22/06	ND	6/22/06	ND		
U3-2	6/22/06	ND	6/22/06	ND		
U3-3	6/22/06	ND	6/22/06	ND		
U3-4D	6/22/06	ND	6/22/06	ND	NA	
U3-4S			No Sample			
U3-T1	8/1/07	ND	8/1/07	ND	6/12/07	ND
U3-T2	8/1/07	ND	8/1/07	ND	6/12/07	ND

1. Not Analyzed
2. Result from a composite sample



GZA GeoEnvironmental, Inc.
One Edgewater Drive
Norwood, MA 02062
Phone: (781) 278-3700 Fax: (781) 278-5701

INDIAN POINT ENERGY CENTER
BUCHANAN, NEW YORK

BOUNDING CESIUM (Cs), COBALT (Co), AND NICKEL (Ni) ACTIVITY[1] IN GROUNDWATER

Proj. Mgr.: MJB Designed By: MJB Reviewed By: MJB Operator: GAS	Dwg. Date: 1-4-2008 Job No.: 41.0017869.10	Figure No.: 8.3

J:\17,000-18,999\17869\17869-10\DWF\gurred\GIS\MXD Documents\17869-10_8-3_Max_Cs-Co-Ni_v10.mxd