

**MAXEY FLATS  
NUCLEAR DISPOSAL SITE  
CALENDAR YEAR 2006  
SUMMARY REPORT**

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For the  
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Radiation/Environmental Monitoring Section

MFNDS CY 2006 SUMMARY REPORT

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## MFNDS CY 2006 SUMMARY REPORT

### Introduction

One thousand-two hundred and sixty-five (1,265) water samples were collected during calendar year (CY) 2006 from the environment within 4.5 air miles of the Maxey Flats Nuclear Disposal Site (MFNDS) (**Figure 1**). The Radiation/Environmental Monitoring Section (REMS) performed 5375 analyses on these samples. An additional 7835 quality control analyses were performed to ensure the accuracy and precision of the analytical results. Data was validated by an independent third party.

Surface water, groundwater, and soil pore-water samples were collected from the MFNDS and its environs in CY 2006. Surface water samples were collected from on-site and off-site streams, drains, washes, ditches, and retention basins. Groundwater samples were collected from drinking-water wells and U. S. Geological Survey (USGS) monitoring wells. Soil pore-water samples were collected from porous-cup lysimeters on the west hillside. Analytical data generated from the MFNDS sampling locations is provided in attached data summaries.

In CY 2006, the REMS conducted extended radionuclide analyses on groundwater samples from the USGS monitoring wells outside the Restricted Area and on samples from select surface water locations and seeps. Extended radionuclide analyses of monitoring-well groundwater, surface water, and seep-water samples provided the REMS with information regarding contaminant migration from the burial trenches following completion of Initial Remedial Phase Superfund activities.

When sufficient data was available for off-site and on-site sampling locations, descriptive and comparative statistical analyses were performed. Descriptive statistical analyses were conducted for most locations. Assessment was conducted to evaluate the potential short and long-term impacts of the MFNDS on public health, safety and the environment. Data collected during 2006 can be utilized to assess whether the actions implemented during the Initial Remedial Phase under Superfund at the MFNDS were successful in meeting remedial goals.

### Laboratory Considerations

The sample minimum detectable concentration (MDC) for HTO measurements by the REMS laboratory ranged from 0.3 picocuries/milliliter (pCi/ml) for 5.0 ml sample aliquots used in the analysis of all on-site, off-site, drinking wells, some monitoring wells, and soil water samplers to 16.5 pCi/ml for 0.1 ml aliquots used in the analysis of various soil water samples and monitoring well water samples. The MDC for gross alpha-

particle activity is sample volume dependent and ranged from approximately 2.2 pCi/l for 200 ml aliquots with the MDC increasing with a decrease in sample aliquot volume. The MDC for gross beta-particle activity is also sample volume dependent. The MDC for gross beta-particle activity was approximately 4.0 pCi/l for 200 ml aliquots with the MDC increasing with a decrease in sample volume aliquots.

### **Background and Off-Site Monitoring**

Mean HTO activity for sample locations ranged from less than the MDC at background sampling locations, to 52.5 pCi/ml at the old license site-boundary Location 144 in the East Main Drainage Channel. Background and off-site surface-water sample locations (**Figure 1**) included; Crane Creek (ST119) on Highway 32, Crane Creek on Rawlings Road (ST121), Fox Creek off Highway 158 (ST130), Fox Creek on Highway 111 (ST136), Rock Lick Creek above confluence with No-Name Creek (ST122), and Rock Lick Road at the first bridge (ST101).

HTO activity in groundwater samples from the background drinking-water well ST112 north of the site at Highway 1895 was below the laboratory reported sample MDCs (**Figure 2.**) The first two well water samples collected at ST142 in calendar year 2006 had HTO activity above the laboratory reported MDC for each sample while the third well water sample collected in October of 2006 had HTO activity below the laboratory reported MDC for the sample (**Figure 2**).

### **East Main Drain Seep Monitoring**

Samples collected from a biomonitoring plot in 1990 established the contamination zone on the East Main Drain Hillside. The plume of HTO activity associated with the seeps on the East Main Drain Hillside was mapped by using data from the biomonitoring network. The biomonitoring plot results indicated that HTO moves through the colluvium on the East Main Drain Hillside to the East Main Drainage Channel above the 800' elevation (above Location 113). REMS personnel have monitored the East Main Drain Hillside seeps since 1990.

Table 1-1 presents the HTO data for seeps on the East Main Drain Hillside (**Figure 3**) from January through December 2006. This data indicates that a pulse of HTO activity in groundwater continues to migrate from the 40-Series trenches to the East Main Drain Hillside. Since this movement is most likely through fractures in the Upper/Lower Farmers Members underlying the East Side of the site, it may have been difficult to mitigate during remediation of the facility. The Radiation Health Branch continues to monitor the East Main Drain Hillside for further evidence of radionuclide activity.

**Table 1-1. CY 2006 East Drain Seep Data.**

Tritium data for Water Samples were collected from Seeps on the East Hillside at the Maxey Flats Nuclear Disposal Site.

Tritium pCi/mL + Error

Collection Date	UFS-1		UFS1N		LFS-2	
	pCi/ml	CU	pCi/ml	CU	pCi/ml	CU
1/12/2006	(a)		(a)		4675	5
2/15/2006	(a)		(a)		5279	5
3/16/2006	(a)		(a)		3839	4
4/20/2006	(a)		(a)		3111	4
5/24/2006	(a)		(a)		6394	6
7/24/2006	(a)		(a)		3575	4
8/23/2006	(a)		(a)		4826	5
9/27/2006	(a)		(a)		3939	4
10/3/2006	(a)		9993	15	4260	10
10/25/2006	(a)		(a)		5557	5
11/28/2006	(a)		(a)		5197	5

(a) No samples taken because of low flow along the face of the lower Farmers' outcrop. CU=Counting Uncertainty

**Table 1-2. East Hillside Annual Seep Data**

Annual Seeps located on Farmers outcrops on East Hillside October 3, 2006

Location	HTO		Gross alpha		Gross beta		Gamma
	pCi/ml	CU	pCi/l	CU	pCi/l	CU	pCi/l
UFS1	(a)		(a)		(a)	(a)	(a)
UFS1N	9934	15	<i>0</i>	<i>8</i>	56	12	(a)
LFS2	4260	10	<i>6</i>	<i>8</i>	25	11	<MDC
EMR1	8478	14	<i>5</i>	<i>8</i>	48	12	<MDC
EMR2	8483	14	<i>0</i>	<i>7</i>	36	12	<MDC
EMR3	(a)		(a)		(a)		(a)
EMR4	(a)		(a)		(a)		(a)
EMR5	(a)		(a)		(a)		(a)
EMR6	(a)		(a)		(a)		(a)
EML1	(a)		(a)		(a)		(a)
EML2	(a)		(a)		(a)		(a)
EML3	(a)		(a)		(a)		(a)
EML4	(a)		(a)		(a)		(a)

a = No samples taken because of low flow along the face of the lower Farmers' outcrop. Italics = Reported value below sample MDC or error greater than 50% of the reported value. MDC=Minimum Detectable Concentration. CU=Counting Uncertainty.

USF1N, LFS2, EMR1, and EMR2 were collected during the annual seep sample collection in CY 2006. The data for these East Main Drain Hillside Seeps is presented in Table 1-2.

Elevated HTO activity was detected in samples collected from the Farmers outcrop seeps to the North of the East Main Drain at the four (4) locations sampled in CY 2006. Water collected from locations at the East Main Drain Seeps on October 3, 2006 was also analyzed for gamma emitting radionuclides.

#### **East Main Drain Monitoring**

The HTO activity at sampling locations 113 and 144 (**Figure 4**) is representative of the discharge to surface water of leachate-contaminated groundwater that has migrated through the subsurface from the 40-Series disposal trenches to the East Main Drainage Channel. The average HTO activity at Location 144 in the East Main Drainage Channel was 50 pCi/ml in CY 2005 and 52 pCi/ml in 2006. The average HTO activity at location 113 in CY 2005 was 106 pCi/ml whereas the average activity at location 113 was 126 pCi/ml in 2006.

The HTO activity at East Main Drainage Channel locations 113 and 144 appear to remained elevated relative to HTO activity found upgradient and upslope at the outlet (1000' msl) and within the East Main Drainage Retention Pond (EDOUTL). However, too few samples were collected at the east drain outlet and within the east drain pond to conduct a valid statistical comparison.

The mean HTO activity for the automatic sampler EDRN at 800 feet above mean sea level (MSL) in the East Main Drainage Channel (**Figure 5**) was 111 pCi/ml in 2004 and 82 pCi/ml in 2006. The EDRN automatic sampler (EDRN) in the East Main Drainage Channel at the 800-foot elevation composites samples on a daily basis. EDRN HTO activity for CY 2005 ranged from 0.6 to 370 pCi/ml and in CY 2006 ranged from 1.9 to 269 pCi/ml.

The results of <sup>90</sup>Sr analyses for the first (1<sup>st</sup>) through fourth (4<sup>th</sup>) quarters of CY 2006 are presented in **Table 1-3**.

**Table 1-3. Strontium-90 (<sup>90</sup>Sr) surface water data for CY 2006.**

Strontium-90 Analysis of Water Samples Collected at the Maxey Flats Nuclear Disposal Site on January 12, 2006.

Location	<sup>90</sup> Sr pCi/liter	CU*
102QC	<b>1.5</b>	0.9
103	<b>-1.5</b>	0.8
106	<b>1.5</b>	0.8
107	<b>0.2</b>	0.9
122	<b>-2.5</b>	1.5
143	<b>-7.5</b>	0.8
144	<b>2.4</b>	0.9
145	<b>-1.5</b>	0.8

Bold Italics = Reported Values Below MDC; CU=Counting Uncertainty

Strontium-90 Analysis of Water Samples Collected at the Maxey Flats Nuclear Disposal Site on April 18 and 20, 2006.

Location	<sup>90</sup> Sr pCi/liter	CU*
103	<b>-0.9</b>	1.00
106	<b>0.5</b>	1.2
107	<b>0.4</b>	0.9
108	15.8	5.9
122	2.2	1.0
143	<b>0.6</b>	1.3
144	<b>-0.09</b>	0.9
145	<b>1.8</b>	0.9
EDOUTL	<b>1.4</b>	0.9

Bold Italics = Reported Values Below MDC; CU=Counting Uncertainty

Strontium-90 Analysis of Water Samples Collected at the Maxey Flats Nuclear Disposal Site on July 19 and 24, 2006.

Location	<sup>90</sup> Sr pCi/liter	CU*
102	<b>-0.6</b>	0.8
106	<b>-0.3</b>	0.4
143	<b>-1.8</b>	0.7
107	<b>0.5</b>	0.8
144	<b>-0.8</b>	0.6
NCW114	<b>-0.3</b>	0.8

Bold Italics = Reported Values Below MDC; CU=Counting Uncertainty



**Table 1-3. Strontium-90 (<sup>90</sup>Sr) surface water data for CY 2006.**

Strontium-90 Analysis of Water Samples Collected at the Maxey Flats Nuclear Disposal Site on October 25, 2006.

Location	<sup>90</sup> Sr pCi/liter		CU*
102QC	<b><i>-1.2</i></b>		0.9
103	<b><i>-1.3</i></b>		1.2
106	<b><i>-0.5</i></b>		0.8
107	<b><i>-0.7</i></b>		1.0
112	<b><i>-0.9</i></b>		0.9
122	<b><i>-0.3</i></b>		1.0
143	<b><i>0.5</i></b>		1.3
144	<b><i>0.7</i></b>		1.1
145	<b><i>-0.6</i></b>		0.8

Bold Italics = Reported Values Below MDC; CU=Counting Uncertainty

#### **West Hillside Surface Water Monitoring**

Surface water sampling locations in Wash 107 from the middle of the hillside, location G107, downgradient/downslope to the dirt road, W7ATRD, just east of Drip Springs Creek had elevated HTO activity compared to levels of HTO activity above the middle of the hillside at locations I107 and J10. The HTO activity in surface water sampling locations from the middle of the hillside in Wash 107 to downslope locations at the bottom of the west hillside reflect movement of HTO from the western series disposal trenches to these locations via subsurface pathways.

The mean HTO grab-sample activity at location 102 at the junction of Rock Lick Creek and Highway 158 was 0.8 pCi/ml in 2005 and 0.6 pCi/ml in 2006. The mean grab-sample HTO activity in Drip Springs Creek at Location 103 (Figure 8) was 0.6 pCi/ml in 2005 and 0.4 pCi/ml in 2006. The HTO activity at these two (2) sampling locations reflects controls established during the Initial Remedial Phase to minimize release of HTO from the Earthen Mound Concrete Bunkers.

#### **USGS Monitoring Well Sampling**

Extended radionuclide analysis of water from selected United States Geological Survey (USGS) monitoring wells (**Figure 9**) continued in CY 2006. Extended radionuclide analyses were evaluated in order to monitor the flux of contaminant movement in contaminant plumes in the Northwest corner of the Restricted Area. All monitoring wells along the eastern side of the disposal site were abandoned during the Initial Remedial Phase.

Extended radionuclide data collected during CY 2006 along with data collected in CY 2000, 2001, 2002, 2003, 2004 and 2005 is critical for establishing conditions for assessing the effectiveness and performance of the MFNDS Initial Remedial Phase actions.

Extended radionuclide analyses for USGS monitoring well samples were conducted on samples collected in April and October 2006. Strontium-90 ( $^{90}\text{Sr}$ ), carbon-14 ( $^{14}\text{C}$ ), plutonium-238 ( $^{238}\text{Pu}$ ), plutonium-239 ( $^{239}\text{Pu}$ ), uranium-238 ( $^{238}\text{U}$ ), uranium-235 ( $^{235}\text{U}$ ), and uranium-234 ( $^{234}\text{U}$ ) analyses were conducted on groundwater samples from the USGS monitoring wells.

### **CY 2006 Observations for Water from USGS Monitoring Wells**

- Elevated levels of gross alpha-particle activity were detected in water from monitoring wells: UK1, UF-2, and UE-2.
- Specific alpha analyses were performed for the following radionuclides:  $^{234}\text{U}$ ,  $^{235}\text{U}$ ,  $^{238}\text{U}$ ,  $^{238}\text{Pu}$ , and  $^{239}\text{Pu}$ . Table 1-4a and b presents the activity of these isotopes for wells UE-2, UF-2, UK-1, N2B, and UF10a.
- Based on the data in Table 1-4a and b, alpha-emitting radionuclides are distributed in LMB groundwater in the north/northwest portion of the Restricted Area and adjacent to the site.
- Wells UE-2, UF-2, UK-1, N2B, and UF10a had  $^{234}\text{U}$  activity in groundwater that exceeded the sample specific MDC for both the April and October 2006 samples. Wells UF-2, UK-1, N2B, and UF10a had  $^{238}\text{U}$  activity in groundwater that did not exceed the sample specific MDC for samples collected in April CY 2006. Well UE-2 was the only well that had  $^{238}\text{U}$  activity exceeding the sample specific MDC for the April 2006 samples. Wells UE-2 and UF2 had  $^{238}\text{U}$  activity that exceeded the sample specific MDC for the October 2006 samples.
- The maximum activity for  $^{238}\text{U}$  in the monitoring wells tested ranged from 4.1 pCi/l with a counting uncertainty (CU) of 0.9 pCi/l in well UF-1 to activity less than the reported sample specific MDC.
- $^{235}\text{U}$  activity was below the MDC or had counting uncertainty greater than 50% of the activity for monitoring well water samples.
- The activity of  $^{234}\text{U}$  exceeds the activity of  $^{238}\text{U}$  in the wells listed in Tables 1-4a and 1-4b suggesting that natural or depleted uranium is not the source of the  $^{234}\text{U}$  or that the activity may be due to another isotope of uranium. Based on analysis of alpha spectroscopy data by REMS staff, the elevated activity may be due to the presence of  $^{233}\text{U}$ .
- In April 2006 the  $^{234}\text{U}$  (or possibly  $^{233}\text{U}$ ) activity in water from USGS Monitoring well UE-2 was 21.7 pCi/l with a CU of 2.3 pCi/l, UF-2 was 9.7 pCi/l with a CU of 1.5 pCi/l, UK-1 was 4.7 pCi/l with a CU of 1 pCi/l, N2B was 4.9 with a CU of 1.0, and

UF-10a was 0.9 pCi/l with a CU of 0.4 pCi/l. In October 2006 the  $^{234}\text{U}$  activity in water from USGS Monitoring well UE-2 was 15.6/2.1 pCi/l (activity/counting uncertainty), UF-2 was 19.2/2.4 pCi/l, UK-1 was 11.9/1.8 pCi/l, N2B was 20.2/2.5 pCi/l, and UF-10a was 2.3/0.7 pCi/l.

- If the activity is due to the presence of  $^{234}\text{U}$ , the maximum activity of 21.7 pCi/l is 7.2% of the limit of 300 pCi/l imposed by 902 KAR 100:019, for controlled release of  $^{234}\text{U}$  outside the boundary of a disposal trench.
- $^{238}\text{Pu}$  activity was above the sample specific MDC in wells UE-2, UF-2, UK-1, and N2B for both April and October 2006. Water from well UF-10a was below the sample specific MDC for both collection dates.
- $^{239}\text{Pu}$  activity in groundwater was below the sample specific MDC in wells UE-2, UF-2, UK-1, N2B, and UF10a.
- The maximum activity of  $^{238}\text{Pu}$  was observed in UE-2. The activity of  $^{238}\text{Pu}$  in well water from UK-1 was 9.4 pCi/l with a CU of 1.8 pCi/l.
- The  $^{238}\text{Pu}$  activity in CY 2006 for UE-2 was 47% of the limit of 20 pCi/l imposed by 902 KAR 100:019, for controlled release of  $^{238}\text{Pu}$  outside the boundary of a disposal trench.
- $^{90}\text{Sr}$  activity was above the sample specific MDC in water from USGS monitoring wells UE-2, UF-2, and UK-1, for both collection dates (Table 1-5). The  $^{90}\text{Sr}$  activity in water from well N2B exceeded the sample specific MDC in October (Table 1-5). Water from well UF-10a was below the sample specific MDC for both collection dates (Table 1-5).
- The maximum  $^{90}\text{Sr}$  activity for groundwater from well UF-2 was 156 pCi/l with CU of 10 pCi/l. The  $^{90}\text{Sr}$  activity in CY 2006 in monitoring well UF-2 water was less than the limit of 500 pCi/l imposed by 902 KAR 100:019 for controlled release of  $^{90}\text{Sr}$  outside the boundary of a disposal trench.
- Cobalt-60 ( $^{60}\text{Co}$ ) activity in groundwater was above the sample specific MDC in wells UF-2 and UE-2 for the April and October 2006 samples (Table 1-6). Cobalt-60 ( $^{60}\text{Co}$ ) activity was above the MDC in groundwater from well N2B for the October 2006 sample (Table 1-6).
- The  $^{14}\text{C}$  activity in groundwater was above the sample specific MDC in USGS monitoring wells UK-1, UF-2, UE-2, UF-10a, and N2B (Table 1-7).
- $^{137}\text{Cs}$  activity for each groundwater sample was less than sample specific MDC for the USGS monitoring wells.

#### **Summary of Extended Radionuclide Analyses**

- Based on the results of CY 2006 and historical extended radionuclide analyses, radionuclides continue to migrate at elevated level in groundwater to the west and north/northwest corner of the Restricted Area.

**TABLE 1-4a. USGS Monitoring Well Uranium and Plutonium Data APRIL 2006.**

USGS Well	Activity in pCi/l			
	<sup>238</sup> U/CU	<sup>234</sup> U/CU	<sup>238</sup> Pu/CU	<sup>239</sup> Pu/CU
UE2	1.0/0.4	21.7/2.3	9.4/1.8	<b>0.2/0.2</b>
UF2	<b>-0.4/0.1</b>	9.7/1.5	4.2/1.1	<b>0.09/0.2</b>
UK1	<b>0.4/0.3</b>	4.7/1.0	5.4/1.2	<b>0.05/0.09</b>
N2B	<b>0.2/0.2</b>	4.9/1.0	2.8/0.9	<b>0.05/0.2</b>
UF10a	<b>0.4/0.3</b>	0.9/0.4	<b>0.5/0.4</b>	<b>0.09/0.2</b>

**Bold Italics** = Reported Value Below MDC or a counting uncertainty of greater than 50%; NA = Not Analyzed; CU=Counting Uncertainty

**TABLE 1-4b. USGS Monitoring Well Uranium and Plutonium Data October 2006.**

USGS Well	Activity/CU in pCi/l			
	<sup>238</sup> U/CU	<sup>234</sup> U/CU	<sup>238</sup> Pu/CU	<sup>239</sup> Pu/CU
UE2	0.5/0.3	15.6/2.1	2.9/0.9	<b>0.1/0.3</b>
UF2	4.1/0.9	19.2/2.4	1.9/0.7	<b>0.1/0.3</b>
UK1	<b>0.5/0.3</b>	11.9/1.8	3.4/1.0	<b>0.3/0.3</b>
N2B	<b>0.8/0.4</b>	20.2/2.5	5.8/0.9	<b>0.2/0.2</b>
UF10a	<b>1.1/0.5</b>	2.3/0.7	<b>0.6/0.4</b>	<b>-0.05/0.2</b>

**Bold Italics** = Reported Value Below MDC or a counting uncertainty of greater than 50%; NA = Not Analyzed; CU=Counting Uncertainty

**TABLE 1-5. USGS Monitoring Well Strontium-90 Data April/October 2006.**

USGS Well	<sup>90</sup> Sr Activity/CU in pCi/l	
	April	October
UE2	94/8	56/8
UF2	156/10	79/8
UK1	26/6	5/1.0
N2B	<b>12/6</b>	33/7
UF10a	<b>3/5</b>	<b>3/5</b>

**Bold Italics** = Reported Value Below MDC or a counting uncertainty of greater than 50%; NA = Not Analyzed; CU=Counting Uncertainty

**TABLE 1-6. USGS Monitoring Well Cobalt-60 Data April/October 2006.**

USGS Well	<sup>60</sup> Co Activity/CU in pCi/L	
	April	October
UE2	42/18	33/15
UF2	51/12	29/13
UK1	33/9	44/13
N2B	<b>17/15</b>	69/17
UF10a	<b>-1/2</b>	<b>-3/9</b>

**Bold Italics** = Reported Value Below MDC or a counting uncertainty of greater than 50%; NA = Not Analyzed; CU=Counting Uncertainty

**Table 1-7. USGS Test Monitoring carbon-14 data April/October 2006.**

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<sup>14</sup> C Activity/CU in pCi/l		
USGS Well	April	October
UE2	150/72	461/40
UF2	1610/74	547/42
UK1	529/49	387/39
N2B	214/39	475/41
UF10a	<b>40/32</b>	<b>36/29</b>

**Bold Italics** = Reported Value Below MDC or a counting uncertainty of greater than 50%; NA = Not Analyzed; CU=Counting Uncertainty

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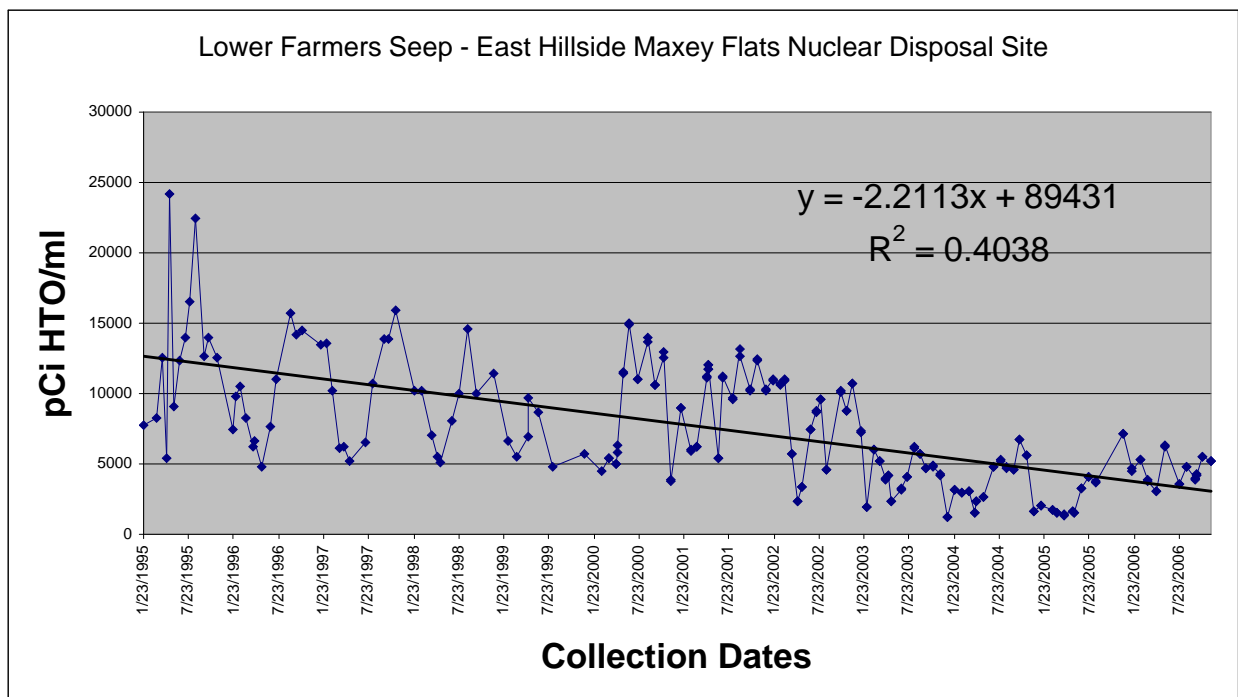
- Radionuclide movement away from the disposal trenches is most likely controlled by: 1) The potentiometric gradient in the Lower Sandstone Marker Bed (LMB) which is radially away from the center of the Restricted Area; 2) The dip of the LMB which is radially away from the center of the Restricted Area; and 3) by the fracture orientation of the LMB.
- The data indicates that remedial measures taken at the MFNDS during the Initial Remedial Phase may not have sufficient time to impact the migration of radionuclides.
- The continued evaluation of the movement of radionuclides in groundwater toward the west hillside and north/northwest area of the MFNDS during the Interim Maintenance Period (IMP) is critical because of continued migration of elevated levels of radionuclides and the long-term potential for erosion to impact the discharge of groundwater to the surface, resulting in increased radionuclide activity in surface water.

### **Regulatory & Public Health Assessment**

Kentucky Administrative Regulation, 902 KAR 100:022, Section 18 requires that the annual dose at the site boundary of a low-level radioactive disposal site not exceed 25 mrem. Kentucky Administrative Regulation 902 KAR 100:015, Section 2 establishes releases be maintained "As Low As Reasonably Achievable" (ALARA). A primary focus of a radiation protection program is to maintain concentration/doses ALARA. The license for the MFNDS and other licenses issued in the Commonwealth of Kentucky for handling and release of radioactive material are based on ALARA requirements to minimize radiation doses to workers and members of the public.

The HTO activities at East Main Drain Hillside seep locations inside the site boundary need to be compared to a limit of 1,000 pCi/ml imposed by 902 KAR 100:019, Section 44(7) for the controlled release of tritium outside the boundary of the trenches and the Restricted Area. HTO activity in CY 2005 at

the lower farmer seep (LFS2) within the site boundary in the East Main Drain Hillside ranged from 1380 to 7170 pCi/ml with an average activity of 2810 pCi/ml. HTO activity in CY 2006 at the lower farmer seep (LFS2) within the site boundary in the East Main Drain Hillside ranged from 3110 to 6290 pCi/ml with an average activity of 4570 pCi/ml. These HTO activities within the East Main Drain Channel exceed the established release limit of 1,000 pCi/ml for HTO. The chart below provides the trend line for the HTO activity from 1996 through 2006 at the Lower Farmers Seep on the east hillside. There is a downward trend in the level of HTO activity which would be expected since the graph represents a time frame of 11 years, which is almost one half-life (12.35 years) for HTO. Based on the graph for HTO activity at the Lower Farmers Seep, it is not clear whether the Initial Remedial Phase has had a significant impact on the HTO activity at the Lower Farmers Seep on the east hillside.



Surface water sample location 113 is in the East Main Drainage Channel within the MFNDS old license site boundary. For January through December 2006 the mean HTO activity of 126 pCi/ml at ISCO EDRN in the East Main Drainage Channel is 12.6% of the 1,000 pCi/ml limit in 902 KAR 100:019, Section 44(7) for release of HTO outside the boundary of the trenches and the Restricted Area. For January through December 2005 the mean HTO activity of 106 pCi/ml at ISCO EDRN in the East Main Drainage Channel is 10.6% of the 1,000 pCi/ml limit in 902 KAR 100:019, Section 44(7) for release of HTO outside the boundary of the trenches and the Restricted Area. The HTO activity remains elevated over the past five years at location 113. The table below provides the annual average HTO activity and the range of HTO activity in surface water at Location 113.

### HTO Activity in Water at Location 113 - East Drainage Channel

Year	Annual Average (pCi/ml)	Range	
		Upper (pCi/ml)	Lower (pCi/ml)
2006	126	34	308
2005	106	58	290
2004	153	28	237
2003	84	10	258
2002	64	7	178

With the completion of the Initial Remedial Phase all surface water from the Initial Remedial Phase cap has been diverted to the East Main Drainage Channel. The increased discharge of surface water to the East Main Drainage Channel should be impacting the HTO activity at locations in the East Main Drainage Channel. However, the HTO activity from 2002 to 2006 at location 113 and the level of HTO at LFS2 indicates the remedial activities may not have had time to fully impact HTO activity in the east drainage channel.

Surface water sampling location 144 is at the old MFNDS licensed site boundary in the East Main Drainage Channel. The average annual HTO activity for Location 144 was 52 pCi/ml during CY 2002, 60 pCi/ml during CY 2003, 90 pCi/ml in CY 2004, 50 pCi/ml in CY 2005, and 54 pCi/ml in 2006. This data along with the data for the Lower Farmers Seep and Location 113 indicates that it may require additional time for the Initial Remedial Phase to impact the level of HTO in the East Drainage Channel.

With the addition of the buffer zone acquired during the Initial Remedial Phase location 144 is no longer the point of compliance for comparison to the 25 mrem/yr dose standard in 902 KAR 100:022. However, radiation doses will continue to be calculated at location 144 in order to assess long-term statistical trends.

The dose assessment for HTO assumes sufficient surface water is available at location 144, one mile within the new site boundary, and a person resides at the location for 365 day a year, consuming 2 liters of water per day. Based on these hypothetical assumptions, a person consuming surface water at 54 pCi HTO/ml would receive an annual radiation dose from tritium of 2.5 millirem/year (mrem/yr). The hypothetical annual dose at location 144 would be 10.1% of the 25 mrem/yr dose limit established by 902 KAR 100:022, Section 18 for the site boundary. The annual dose for tritium was calculated using the RESRAD-BASELINE computer code (ARGONNE NATIONAL LABORATORY).

The new site boundary requires calculation of the potential dose to a receptor at location 102. This location is immediately

outside of the new site boundary on Rock Lick Creek. Samples were collected at location 102 with a sequential sampler. The average annual CY 2005 HTO activity at location 102 from sequential sampler data was 0.55 pCi/ml. Assuming surface water, at 0.55 pCi HTO/ml, could be used as a drinking water source an individual consuming 730 liters of water 365 day a year would receive an annual radiation dose of 0.03 mrem/yr from HTO. The annual radiation dose from tritium (HTO at location 102 is 0.16% of the 25 mrem/yr dose limit established by 902 KAR 100:022, Section 18 for the site boundary. The annual dose for tritium was calculated using the RESRAD-BASELINE computer code (ARGONNE NATIONAL LABORATORY).

The radiation dose from HTO of 2.5 mrem/year for an individual drinking surface water at the old site boundary, location 144, in the East Main Drainage Channel, one mile upstream of the new site boundary, would result in a risk of  $5.8 \times 10^{-5}$ . However, the East Main Drainage Channel is not a perennial stream and it is no longer the point of compliance. It is also unlikely that sufficient water would be present to provide 2.0 liters of drinking water for an individual 365 days per year. The level for cancer risk was calculated using the RESRAD-BASELINE computer code (ARGONNE NATIONAL LABORATORY).

The radiation dose from HTO of 0.03 mrem/year for an individual drinking surface water at Rock Lick Creek location 102, outside of the new site boundary, would result in a risk of  $5.9 \times 10^{-7}$ . The level for total cancer risk at location 102 was calculated using the RESRAD-BASELINE computer code (ARGONNE NATIONAL LABORATORY).

The International Commission on Radiation Protection (ICRP) proposed use of the effective dose ( $H_T$ ) as a primary radiation protection standard and Annual Limit of Intake (ALI) as a secondary standard (ICRP Publication 30) for radiation protection. These limits have been adopted by the National Council on Radiation Protection and Measurements (NCRP, Report No. 116). NCRP Report No. 116 also recommends a Negligible Individual Risk Limit (NIRL) of 1 mrem/year. The NIRL is the level of average excess fatal health risk from radiation exposure from any individual source or practice below which further effort to reduce individual exposure is unwarranted.

*The release of elevated levels of HTO within the site boundary remains a significant long-term concern considering the potential for erosion on the east and west hillsides. Efforts were made during the Initial Remedial Phase to minimize both the release of radionuclides and the potential for impacts of erosion on the hillslopes surrounding the disposal trenches.*



*Analysis of CY 2006 data indicates the Initial Remedial Phase activities have not had a significant impact on the continuing release of tritium to the slopes surrounding the disposal trenches. Based on analysis of CY 2006 data, it is essential that sufficient monitoring be conducted to continue the evaluation of the effectiveness of the Initial Remedial Phase and to determine the potential for impacts on public health.*

*The REMS continues to maintain sufficient monitoring locations on the East Main Drain Hillside and in the East Main Drainage Channel to assess present and future impacts of contaminant movement to locations within the new site boundary and to locations outside of the new site boundary. Sampling frequency allows for remedial actions to be planned and implemented, to address increases in radionuclide activity, if necessary. The REMS also has sufficient monitoring locations on the west hillside to continue to effectively monitor release from the disposal trenches to Wash 107 and Drip Springs Creek.*

### **Conclusions**

Based on evaluation of CY 2006 data generated by the Radiation Health Branch, Department for Public Health, Cabinet for Health and Family Services during CY 2006, the MFNDS does not presently pose a threat to public health.

Analyses of water from monitoring wells, porous cups, seeps, and surface water locations indicate that ex-filtration of leachate from the trenches continues to occur at the MFNDS. The activities of HTO and radionuclides in soil water, groundwater, and surface water at the perimeter of the Restricted Area have not been significantly reduced even though the Initial Remedial Phase of the Superfund remediation has been completed and certified by the U.S. Environmental Protection Agency.

To fully appreciate the present evaluation of water infiltration/ex-filtration problems at MFNDS and the continuing release of radionuclides, it must be stressed that the existing evaluation of site conditions encompasses a snapshot in time when compared to the required remedial action and institutional control period time frame of 200 years required by the Federal Court ordered Consent Decree.

## **APPENDICES**

**APPENDIX 1. Surface Water Summary Data.**

Mean HTO, Gross Alpha, Gross Beta Activity for 2006  
in Off-Site Surface Water at the Maxey Flats Disposal Site

Location	Mean HTO (pCi/ml)	Mean Gross Beta Activity (pCi/liter)	Mean Gross Alpha Activity (pCi/liter)
101	0.04	-0.09	1.2
102	0.6	-0.2	0.3
102QC	0.5	-0.8	-0.001
103	0.4	-0.4	1.2
143	0.1	0.3	2.2
PDSKG	0.02	2.1	2.5
106	3.4	-0.4	0.1
107	1.0	0.2	0.3
N107	0.7	-0.1	1.4
108	0.6	0.3	1.9
112	0.05	-0.7	2.6
113	126	-0.4	1.8
144	53	-0.2	0.6
119	0.8	-0.5	0.5
121	0.3	-0.6	0.9
122	0.03	-0.5	0.3
124	0.07	-0.3	0.2
130	0.01	-0.2	0.6
132	0.04	-0.6	0.3
145	0.9	-0.4	1.5
136	0.05	-0.3	0.3
142	0.3	1.4	1.7

Mean HTO Activity in Surface Water at Location 113 and East Pond Outlet

Collection Date	pCi HTO/ml	CU	Collection Date	pCi HTO/ml	CU
1/12/06	50.2	0.5			
1/12/06	49.4	0.5			
2/15/06	71.4	0.5			
2/15/06	72.3	0.5			
3/16/06	121.8	0.7			
3/16/06	120.1	0.7			
4/18/06	72.3	0.6	4/20/06	0.4	0.1
4/18/06	71.6	0.6	4/20/06	0.4	0.1
5/24/06	230.5	1.1			
5/24/06	232.5	1.1			
9/27/06	90.2	0.6			
9/27/06	88.6	0.6			
7/19/06	155.3	0.8			
7/19/06	154.8	0.8			
8/23/06	33.8	0.4			
8/23/06	33.7	0.4			
10/25/06	133.2	0.8			
10/25/06	133.3	0.8			
11/28/06	299.5	1.1			
11/28/06	308.3	1.2			

Mean tritiated Water (HTO), Beta and Alpha Activity in  
Wash from South Drain of 33L at Maxey Flats Waste Disposal Site and Drip Springs Creek for 2005

Location	pCi HTO/mL	Beta Act. (pCi/l)	Alpha Act. (pCi/l)
NCW114	1.0	1.6	-0.3
SCW114	1.0	0.5	0.08
NCW145	1.0	2.1	-0.3

Mean tritiated Water (HTO), Beta and Alpha Activity in  
Wash 7 at Maxey Flats Waste Disposal Site and Drip Springs Creek for 2005

Location	pCi HTO/mL	Beta Act. (pCi/l)	Alpha Act. (pCi/l)
J107	0.09	0.1	-1.0
I107	0.09	1.1	-0.7
H107	NA	NA	NA
G107	14.5	1.0	-0.2
F107	11.6	1.8	-0.8
E107	10.0	0.4	-0.8
D107	8.3	0.6	-0.7
C107	7.8	-0.2	-0.4
DRN107	5.6	1.3	-0.02
W7atRd	5.5	-1.3	-0.7
B107	4.9	1.1	-0.9

Mean tritiated Water (HTO), Beta and Alpha Activity in South Drainage Channel  
For 2005 at the Bottom of the Farmers (BF143)

Collection Date	HTO (pCi/l)	CU	Beta Activity (pCi/l)	CU	Alpha Activity (pCi/l)	CU
1/12/06	0.0	0.1	2.1	1.6	0.0	1.3
1/12/06	0.2	0.1				
2/15/06	0.2	0.1	-0.3	1.5	-0.3	1.1
2/15/06	0.2	0.1				
3/16/06	0.0	0.1	-0.3	1.5	-1.7	0.8
3/16/06	0.1	0.1				
4/18/06	0.2	0.1	1.0	1.4	1.1	1.0
4/18/06	0.0	0.1				
9/27/06	0.0	0.1	-0.3	1.5	-0.6	1.0
9/27/06	0.0	0.1				
10/25/06	0.0	0.1	-0.9	1.6	1.7	1.3
10/25/06	0.2	0.1				

**APPENDIX 2. Groundwater Summary Data**



Tritiated Water (HTO) Mean Activity for 2000  
in U-Wells at Maxey Flats Disposal Site

Location	Mean pCi HTO/mL
UE-2	359000
UK-1	258000
N2B	186000
UF2	185000
UF10a	30000

## **APPENDIX 3. ISCO Surface-water Data**

### **Data Qualifiers for ISCO Surface-water Data**

“=” – Validated Laboratory Result

“U” – Reported Value Below Minimum Detectable Concentration or Error > 50% of Reported Value

“R” – Results Rejected because Relative Percent Difference between duplicate samples is > 15%

**ISCO 102 HTO Activity for 2005**

Collection Date	pCi HTO/ml	CU	MDA	Validation Code
1/1/06	0.56	0.10	0.29	=
1/1/06	0.52	0.10	0.29	=
1/2/06	0.48	0.10	0.29	=
1/2/06	0.41	0.10	0.29	=
1/3/06	0.54	0.10	0.29	=
1/3/06	0.42	0.10	0.29	=
1/5/06	0.04	0.09	0.29	U
1/5/06	-0.03	0.09	0.29	U
1/6/06	7.65	0.22	0.36	R
1/6/06	0.38	0.12	0.36	R
1/6/06	0.35	0.11	0.35	=
1/6/06	0.50	0.12	0.35	=
1/7/06	0.55	0.12	0.36	=
1/7/06	0.40	0.12	0.36	=
1/8/06	0.66	0.12	0.36	=
1/8/06	0.76	0.12	0.36	=
1/9/06	0.52	0.12	0.36	=
1/9/06	0.69	0.12	0.36	=
1/10/06	0.43	0.12	0.36	=
1/10/06	0.48	0.12	0.36	=
1/11/06	0.37	0.12	0.36	=
1/11/06	0.42	0.12	0.36	=
1/12/06	0.78	0.12	0.36	=
1/12/06	0.73	0.12	0.36	=
1/13/06	0.78	0.12	0.36	=
1/13/06	0.94	0.13	0.36	=
1/14/06	1.10	0.13	0.36	R
1/14/06	0.51	0.12	0.36	R
1/14/06	0.35	0.11	0.35	=
1/14/06	0.77	0.12	0.35	=
1/15/06	0.91	0.13	0.36	=
1/15/06	0.96	0.13	0.36	=
1/16/06	0.47	0.12	0.36	=
1/16/06	0.45	0.12	0.36	=
1/17/06	0.60	0.12	0.36	=
1/17/06	0.41	0.12	0.36	=
1/18/06	0.31	0.11	0.36	U
1/18/06	0.19	0.11	0.36	U
1/19/06	0.41	0.12	0.36	=
1/19/06	0.34	0.12	0.36	U
1/20/06	0.35	0.12	0.36	U
1/20/06	0.32	0.11	0.36	U
1/21/06	0.32	0.11	0.36	U
1/21/06	0.30	0.11	0.36	U
1/22/06	0.59	0.12	0.36	=
1/22/06	0.67	0.12	0.36	=
1/23/06	0.02	0.11	0.36	U
1/23/06	0.25	0.11	0.36	U
1/24/06	0.42	0.12	0.36	=
1/24/06	0.17	0.11	0.36	U
1/25/06	0.37	0.12	0.36	=

Collection Date	pCi HTO/ml	CU	MDA	Validation Code
1/25/06	0.43	0.12	0.36	=
1/23/06	-0.01	0.11	0.36	U
1/23/06	-0.11	0.11	0.36	U
1/26/06	0.33	0.10	0.32	=
1/26/06	0.23	0.10	0.32	U
1/27/06	0.47	0.11	0.32	=
1/27/06	0.24	0.10	0.32	U
1/28/06	0.25	0.10	0.32	U
1/28/06	0.33	0.10	0.32	=
1/29/06	0.42	0.10	0.32	=
1/29/06	0.49	0.11	0.32	=
1/30/06	0.99	0.12	0.32	=
1/30/06	1.20	0.12	0.32	=
1/31/06	0.38	0.10	0.32	=
1/31/06	0.51	0.11	0.32	=
2/1/06	1.00	0.12	0.32	=
2/1/06	0.69	0.11	0.32	=
2/1/06	0.79	0.11	0.31	=
2/1/06	0.51	0.10	0.31	=
2/2/06	0.34	0.10	0.32	=
2/2/06	0.51	0.11	0.32	=
2/3/06	0.25	0.10	0.32	U
2/3/06	0.53	0.11	0.32	=
2/4/06	0.80	0.11	0.32	=
2/4/06	1.04	0.12	0.32	=
2/5/06	0.42	0.10	0.32	=
2/5/06	0.49	0.11	0.32	=
2/6/06	0.33	0.10	0.32	=
2/6/06	0.48	0.11	0.32	=
2/7/06	0.86	0.11	0.32	=
2/7/06	0.67	0.11	0.32	=
2/8/06	0.66	0.11	0.32	=
2/8/06	0.40	0.10	0.32	=
2/8/06	0.52	0.10	0.31	=
2/8/06	0.55	0.10	0.31	=
2/8/06	0.22	0.10	0.32	U
2/8/06	0.01	0.10	0.32	U
2/9/06	0.23	0.10	0.32	U
2/9/06	0.42	0.10	0.32	=
2/10/06	0.32	0.10	0.32	=
2/10/06	0.19	0.10	0.32	U
2/11/06	0.40	0.10	0.32	=
2/11/06	0.39	0.10	0.32	=
2/12/06	1.33	0.12	0.32	=
2/12/06	1.20	0.12	0.32	=
2/13/06	3.49	0.16	0.32	R
2/13/06	0.64	0.11	0.32	R
2/13/06	0.48	0.10	0.31	=
2/13/06	0.61	0.11	0.31	=
2/14/06	0.87	0.12	0.35	=
2/14/06	0.79	0.12	0.35	=
2/15/06	0.77	0.12	0.35	=
2/15/06	0.79	0.12	0.35	=

Collection Date	pCi HTO/ml	CU	MDA	Validation Code
2/16/06	0.68	0.12	0.35	=
2/16/06	0.63	0.12	0.35	=
2/17/06	0.53	0.12	0.35	=
2/17/06	0.53	0.12	0.35	=
2/18/06	0.42	0.11	0.35	=
2/18/06	0.50	0.12	0.35	=
2/19/06	0.81	0.12	0.35	=
2/19/06	0.93	0.13	0.35	=
2/21/06	0.33	0.11	0.35	U
2/21/06	0.50	0.12	0.35	=
2/22/06	0.45	0.12	0.35	=
2/22/06	0.51	0.12	0.35	=
2/23/06	1.13	0.13	0.35	=
2/23/06	1.16	0.13	0.35	=
2/24/06	0.38	0.11	0.35	=
2/24/06	0.82	0.12	0.35	=
2/24/06	0.56	0.11	0.31	=
2/24/06	0.69	0.11	0.31	=
2/25/06	0.69	0.12	0.35	=
2/25/06	0.53	0.12	0.35	=
2/26/06	0.54	0.12	0.35	=
2/26/06	0.53	0.12	0.35	=
2/27/06	0.55	0.12	0.35	=
2/27/06	0.55	0.12	0.35	=
2/28/06	0.68	0.12	0.35	=
2/28/06	0.42	0.12	0.35	=
2/28/06	1.20	0.12	0.31	R
2/28/06	0.48	0.11	0.31	R
3/1/06	0.50	0.12	0.35	=
3/1/06	0.41	0.11	0.35	=
3/1/06	0.19	0.11	0.35	U
3/1/06	-0.03	0.11	0.35	U
3/2/06	0.35	0.11	0.35	=
3/2/06	0.35	0.11	0.35	=
3/3/06	0.48	0.12	0.35	=
3/3/06	0.41	0.11	0.35	=
3/4/06	0.53	0.12	0.35	=
3/4/06	0.54	0.12	0.35	=
3/5/06	0.61	0.12	0.35	=
3/5/06	0.51	0.12	0.35	=
3/6/06	0.72	0.12	0.35	=
3/6/06	0.53	0.12	0.35	=
3/7/06	0.59	0.12	0.35	=
3/7/06	0.89	0.12	0.35	=
3/7/06	0.63	0.11	0.31	=
3/7/06	0.66	0.11	0.31	=
3/8/06	4.73	0.18	0.35	R
3/8/06	1.84	0.14	0.35	R
3/8/06	1.76	0.13	0.31	=
3/8/06	1.69	0.13	0.31	=
3/9/06	1.15	0.11	0.30	=
3/9/06	0.97	0.11	0.30	=
3/10/06	0.88	0.11	0.30	=

Collection Date	pCi HTO/ml	CU	MDA	Validation Code
3/10/06	0.66	0.10	0.30	=
3/11/06	0.51	0.10	0.30	=
3/11/06	0.60	0.10	0.30	=
3/12/06	0.55	0.10	0.30	=
3/12/06	0.55	0.10	0.30	=
3/13/06	0.58	0.10	0.30	=
3/13/06	0.36	0.10	0.30	=
3/13/06	0.54	0.10	0.29	=
3/13/06	0.53	0.10	0.29	=
3/14/06	0.54	0.10	0.30	=
3/14/06	0.32	0.10	0.30	=
3/14/06	0.57	0.10	0.29	=
3/14/06	0.40	0.10	0.29	=
3/15/06	0.37	0.10	0.30	=
3/15/06	0.38	0.10	0.30	=
3/16/06	0.58	0.10	0.30	=
3/16/06	0.56	0.10	0.30	=
3/17/06	0.59	0.10	0.30	=
3/17/06	0.71	0.10	0.30	=
3/18/06	0.42	0.10	0.30	=
3/18/06	0.46	0.10	0.30	=
3/19/06	0.54	0.10	0.30	=
3/19/06	0.30	0.10	0.30	=
3/19/06	0.56	0.10	0.29	=
3/19/06	0.52	0.10	0.29	=
3/20/06	1.19	0.11	0.30	R
3/20/06	0.35	0.10	0.30	R
3/20/06	0.51	0.10	0.29	=
3/20/06	0.48	0.10	0.29	=
3/21/06	0.51	0.10	0.30	=
3/21/06	0.34	0.10	0.30	=
3/22/06	1.26	0.11	0.30	=
3/22/06	1.09	0.11	0.30	=
3/23/06	0.67	0.10	0.30	=
3/23/06	0.71	0.10	0.30	=
3/24/06	0.34	0.10	0.30	=
3/24/06	0.56	0.10	0.30	=
3/24/06	0.60	0.10	0.29	=
3/24/06	0.57	0.10	0.29	=
3/25/06	0.71	0.10	0.30	=
3/25/06	0.58	0.10	0.30	=
3/26/06	1.33	0.12	0.30	=
3/26/06	1.22	0.11	0.30	=
3/27/06	0.93	0.11	0.30	=
3/27/06	0.78	0.11	0.30	=
3/28/06	0.70	0.10	0.30	=
3/28/06	0.61	0.10	0.30	=
3/29/06	0.44	0.10	0.30	=
3/29/06	0.49	0.10	0.30	=
3/22/06	0.05	0.09	0.30	R
3/22/06	2.38	0.13	0.30	R
3/22/06	0.03	0.09	0.29	U
3/22/06	0.11	0.09	0.29	U

Collection Date	pCi HTO/ml	CU	MDA	Validation Code
3/30/06	1.00	0.11	0.29	=
3/30/06	1.09	0.11	0.29	=
3/30/06	0.53	0.11	0.31	=
3/30/06	0.44	0.10	0.31	=
3/31/06	0.90	0.11	0.29	=
3/31/06	0.85	0.11	0.29	=
4/1/06	0.73	0.10	0.29	=
4/1/06	0.62	0.10	0.29	=
4/2/06	0.55	0.10	0.29	=
4/2/06	0.77	0.10	0.29	=
4/2/06	0.78	0.10	0.27	=
4/2/06	0.77	0.10	0.27	=
4/3/06	0.65	0.10	0.29	=
4/3/06	0.73	0.10	0.29	=
4/4/06	0.81	0.10	0.29	=
4/4/06	0.65	0.10	0.29	=
4/5/06	0.53	0.10	0.29	=
4/5/06	0.53	0.10	0.29	=
4/6/06	0.55	0.10	0.29	=
4/6/06	0.54	0.10	0.29	=
4/7/06	0.60	0.10	0.29	=
4/7/06	0.74	0.10	0.29	=
4/8/06	0.62	0.10	0.29	=
4/8/06	0.63	0.10	0.29	=
4/9/06	0.61	0.10	0.29	=
4/9/06	0.61	0.10	0.29	=
4/10/06	0.51	0.10	0.29	=
4/10/06	0.60	0.10	0.29	=
4/11/06	0.65	0.10	0.29	=
4/11/06	0.58	0.10	0.29	=
4/12/06	0.72	0.10	0.29	=
4/12/06	0.63	0.10	0.29	=
4/13/06	0.64	0.10	0.29	=
4/13/06	0.69	0.10	0.29	=
4/14/06	0.73	0.10	0.29	=
4/14/06	0.93	0.11	0.29	=
4/15/06	1.34	0.11	0.29	=
4/15/06	1.19	0.11	0.29	=
4/16/06	0.64	0.10	0.29	=
4/16/06	0.78	0.10	0.29	=
4/17/06	0.51	0.10	0.29	=
4/17/06	0.66	0.10	0.29	=
4/18/06	0.84	0.11	0.29	=
4/18/06	0.94	0.11	0.29	=
4/18/06	0.17	0.09	0.29	U
4/18/06	0.06	0.09	0.29	U
4/20/06	0.68	0.10	0.28	=
4/20/06	0.64	0.10	0.28	=
4/21/06	0.51	0.10	0.28	=
4/21/06	0.59	0.10	0.28	=
4/22/06	0.89	0.11	0.28	=
4/22/06	1.00	0.11	0.28	=

Collection Date	pCi HTO/ml	CU	MDA	Validation Code
4/23/06	0.56	0.10	0.28	=
4/23/06	0.48	0.10	0.28	=
4/24/06	1.71	0.12	0.28	=
4/24/06	1.85	0.12	0.28	=
4/25/06	0.64	0.10	0.28	=
4/25/06	0.58	0.10	0.28	=
4/26/06	0.81	0.10	0.28	=
4/26/06	0.91	0.11	0.28	=
4/27/06	0.60	0.10	0.28	=
4/27/06	0.60	0.10	0.28	=
4/28/06	0.48	0.10	0.28	=
4/28/06	0.57	0.10	0.28	=
4/29/06	1.00	0.11	0.28	=
4/29/06	0.94	0.11	0.28	=
4/30/06	0.55	0.10	0.28	=
4/30/06	0.51	0.10	0.28	=
5/1/06	0.84	0.10	0.28	=
5/1/06	0.85	0.10	0.28	=
5/2/06	0.69	0.10	0.28	=
5/2/06	0.74	0.10	0.28	=
5/3/06	0.59	0.10	0.28	=
5/3/06	0.67	0.10	0.28	=
5/4/06	0.54	0.10	0.28	=
5/4/06	0.53	0.10	0.28	=
5/5/06	0.33	0.09	0.28	=
5/5/06	0.53	0.10	0.28	=
5/6/06	0.55	0.10	0.28	=
5/6/06	0.34	0.09	0.28	=
5/7/06	0.33	0.09	0.28	=
5/7/06	0.37	0.09	0.28	=
5/8/06	0.42	0.10	0.28	=
5/8/06	0.45	0.10	0.28	=
5/9/06	0.43	0.10	0.28	=
5/9/06	0.44	0.10	0.28	=
5/9/06	-0.06	0.08	0.28	U
5/9/06	-0.06	0.08	0.28	U
5/10/06	0.40	0.10	0.28	=
5/10/06	0.39	0.09	0.28	=
5/11/06	1.32	0.11	0.28	=
5/11/06	1.25	0.11	0.28	=
5/12/06	0.96	0.11	0.30	=
5/12/06	1.05	0.11	0.30	=
5/12/06	0.96	0.11	0.30	=
5/12/06	1.05	0.11	0.30	=
5/13/06	0.71	0.11	0.30	=
5/13/06	0.83	0.11	0.30	=
5/13/06	0.71	0.11	0.30	=
5/13/06	0.83	0.11	0.30	=
5/14/06	0.83	0.11	0.30	=
5/14/06	0.90	0.11	0.30	=
5/14/06	0.83	0.11	0.30	=
5/14/06	0.90	0.11	0.30	=
5/15/06	0.91	0.11	0.30	=



Collection Date	pCi HTO/ml	CU	MDA	Validation Code
5/15/06	1.06	0.11	0.30	=
5/15/06	0.91	0.11	0.30	=
5/15/06	1.06	0.11	0.30	=
5/16/06	1.07	0.11	0.30	=
5/16/06	0.81	0.11	0.30	=
5/16/06	1.05	0.11	0.28	=
5/16/06	1.21	0.11	0.28	=
5/16/06	1.07	0.11	0.30	=
5/16/06	0.81	0.11	0.30	=
5/17/06	0.74	0.11	0.30	R
5/17/06	2.66	0.14	0.30	R
5/17/06	1.03	0.11	0.28	=
5/17/06	0.85	0.11	0.28	=
5/17/06	0.74	0.11	0.30	R
5/17/06	2.66	0.14	0.30	R
5/18/06	0.68	0.11	0.30	=
5/18/06	0.78	0.11	0.30	=
5/18/06	0.68	0.11	0.30	=
5/18/06	0.78	0.11	0.30	=
5/19/06	0.90	0.11	0.30	=
5/19/06	0.71	0.11	0.30	=
5/19/06	0.90	0.11	0.30	=
5/19/06	0.71	0.11	0.30	=
5/20/06	0.67	0.11	0.30	=
5/20/06	0.68	0.11	0.30	=
5/20/06	0.67	0.11	0.30	=
5/20/06	0.68	0.11	0.30	=
5/21/06	0.53	0.10	0.30	=
5/21/06	0.75	0.11	0.30	=
5/21/06	0.90	0.11	0.28	=
5/21/06	0.89	0.11	0.28	=
5/21/06	0.53	0.10	0.30	=
5/21/06	0.75	0.11	0.30	=
5/22/06	0.70	0.11	0.30	=
5/22/06	0.89	0.11	0.30	=
5/22/06	0.70	0.11	0.30	=
5/22/06	0.89	0.11	0.30	=
5/23/06	0.66	0.10	0.30	=
5/23/06	0.53	0.10	0.30	=
5/23/06	0.66	0.10	0.30	=
5/23/06	0.53	0.10	0.30	=
5/24/06	0.55	0.10	0.30	=
5/24/06	0.71	0.11	0.30	=
5/24/06	0.55	0.10	0.30	=
5/24/06	0.71	0.11	0.30	=
5/25/06	3.25	0.15	0.30	R
5/25/06	1.33	0.12	0.30	R
5/25/06	0.84	0.10	0.28	=
5/25/06	1.02	0.11	0.28	=
5/25/06	3.25	0.15	0.30	R
5/25/06	1.33	0.12	0.30	R
5/26/06	0.64	0.10	0.30	=
5/26/06	0.56	0.10	0.30	=

Collection Date	pCi HTO/ml	CU	MDA	Validation Code
5/26/06	0.64	0.10	0.30	=
5/26/06	0.56	0.10	0.30	=
5/27/06	0.62	0.10	0.30	=
5/27/06	0.54	0.10	0.30	=
5/27/06	0.62	0.10	0.30	=
5/27/06	0.54	0.10	0.30	=
5/28/06	0.85	0.11	0.30	=
5/28/06	0.64	0.10	0.30	=
5/28/06	0.85	0.11	0.30	=
5/28/06	0.64	0.10	0.30	=
5/29/06	0.60	0.10	0.30	=
5/29/06	0.49	0.10	0.30	=
5/29/06	0.60	0.10	0.30	=
5/29/06	0.49	0.10	0.30	=
5/30/06	0.47	0.10	0.30	=
5/30/06	0.59	0.10	0.30	=
5/30/06	0.47	0.10	0.30	=
5/30/06	0.59	0.10	0.30	=
5/31/06	1.58	0.12	0.30	R
5/31/06	0.48	0.10	0.30	R
5/31/06	0.68	0.10	0.28	=
5/31/06	0.72	0.10	0.28	=
5/31/06	1.58	0.12	0.30	R
5/31/06	0.48	0.10	0.30	R
6/1/06	0.26	0.10	0.30	U
6/1/06	0.45	0.10	0.30	=
6/1/06	0.26	0.10	0.30	U
6/1/06	0.45	0.10	0.30	=
6/2/06	0.46	0.10	0.30	=
6/2/06	0.33	0.10	0.30	=
6/2/06	0.46	0.10	0.30	=
6/2/06	0.33	0.10	0.30	=
6/3/06	0.50	0.10	0.30	=
6/3/06	0.59	0.10	0.30	=
6/3/06	0.50	0.10	0.30	=
6/3/06	0.59	0.10	0.30	=
6/4/06	0.71	0.11	0.30	=
6/4/06	0.91	0.11	0.30	=
6/4/06	0.71	0.11	0.30	=
6/4/06	0.91	0.11	0.30	=
6/5/06	0.04	0.09	0.30	U
6/5/06	-0.08	0.09	0.30	U
6/5/06	0.04	0.09	0.30	U
6/5/06	-0.08	0.09	0.30	U
6/6/06	1.27	0.12	0.31	=
6/6/06	1.10	0.12	0.31	=
6/7/06	0.71	0.11	0.31	=
6/7/06	0.90	0.11	0.31	=
6/8/06	0.56	0.11	0.31	=
6/8/06	0.66	0.11	0.31	=
6/9/06	0.80	0.11	0.31	=
6/9/06	0.57	0.11	0.31	=
6/10/06	0.47	0.10	0.31	=

Collection Date	pCi HTO/ml	CU	MDA	Validation Code
6/10/06	0.65	0.11	0.31	=
6/11/06	0.43	0.10	0.31	=
6/11/06	0.57	0.11	0.31	=
6/12/06	0.51	0.10	0.31	=
6/12/06	0.42	0.10	0.31	=
6/13/06	0.67	0.11	0.31	=
6/13/06	0.56	0.11	0.31	=
6/14/06	0.63	0.11	0.31	=
6/14/06	0.77	0.11	0.31	=
6/15/06	0.52	0.10	0.31	=
6/15/06	0.36	0.10	0.31	=
6/16/06	0.51	0.10	0.31	=
6/16/06	0.37	0.10	0.31	=
6/17/06	0.39	0.10	0.31	=
6/17/06	0.47	0.10	0.31	=
6/18/06	0.39	0.10	0.31	=
6/18/06	0.47	0.10	0.31	=
6/19/06	0.59	0.11	0.31	=
6/19/06	0.39	0.10	0.31	=
6/20/06	0.40	0.10	0.31	=
6/20/06	0.40	0.10	0.31	=
6/21/06	0.39	0.10	0.31	=
6/21/06	0.44	0.10	0.31	=
6/22/06	0.34	0.10	0.31	=
6/22/06	0.32	0.10	0.31	=
6/23/06	0.20	0.10	0.31	U
6/23/06	0.18	0.10	0.31	U
6/24/06	0.50	0.10	0.31	=
6/24/06	0.38	0.10	0.31	=
6/25/06	0.61	0.11	0.31	=
6/25/06	0.57	0.11	0.31	=
6/26/06	0.83	0.11	0.31	=
6/26/06	0.66	0.11	0.31	=
6/27/06	0.60	0.11	0.31	=
6/27/06	0.74	0.11	0.31	=
6/28/06	0.88	0.11	0.31	=
6/28/06	0.86	0.11	0.31	=
6/29/06	0.65	0.11	0.31	=
6/29/06	0.79	0.11	0.31	=
6/19/06	-0.05	0.09	0.31	U
6/19/06	-0.04	0.09	0.31	U
7/21/06	-0.12	0.09	0.32	U
7/21/06	0.01	0.10	0.32	U
7/22/06	-0.03	0.10	0.32	U
7/22/06	0.02	0.10	0.32	U
7/23/06	-0.09	0.09	0.32	U
7/23/06	0.05	0.10	0.32	U
7/24/06	0.12	0.10	0.32	U
7/24/06	0.04	0.10	0.32	U
7/25/06	0.00	0.10	0.32	U
7/25/06	0.01	0.10	0.32	U
7/26/06	0.03	0.10	0.32	U
7/26/06	0.00	0.10	0.32	U

Collection Date	pCi HTO/ml	CU	MDA	Validation Code
7/27/06	-0.08	0.09	0.32	U
7/27/06	0.10	0.10	0.32	U
7/28/06	0.06	0.10	0.32	U
7/28/06	0.07	0.10	0.32	U
7/17/06	-0.09	0.09	0.32	U
7/17/06	-0.19	0.09	0.32	U
8/12/06	0.55	0.11	0.32	=
8/12/06	0.59	0.11	0.32	=
8/13/06	0.35	0.10	0.32	=
8/13/06	0.42	0.10	0.32	=
8/14/06	0.19	0.10	0.32	U
8/14/06	0.50	0.11	0.32	=
8/15/06	0.29	0.10	0.32	U
8/15/06	0.34	0.10	0.32	=
8/16/06	0.37	0.10	0.32	=
8/16/06	0.39	0.10	0.32	=
8/17/06	0.36	0.10	0.32	=
8/17/06	0.30	0.10	0.32	U
8/18/06	0.36	0.10	0.32	=
8/18/06	0.30	0.10	0.32	U
8/19/06	0.39	0.10	0.32	=
8/19/06	0.51	0.11	0.32	=
8/21/06	0.27	0.10	0.32	U
8/21/06	0.21	0.10	0.32	U
8/22/06	0.36	0.10	0.32	=
8/22/06	0.19	0.10	0.32	U
8/23/06	0.49	0.11	0.32	R
8/23/06	0.12	0.10	0.32	R
8/24/06	0.28	0.10	0.32	U
8/24/06	0.28	0.10	0.32	U
8/25/06	0.08	0.10	0.32	U
8/25/06	0.03	0.10	0.32	U
8/26/06	0.12	0.10	0.32	U
8/26/06	0.22	0.10	0.32	U
8/27/06	0.30	0.10	0.32	U
8/27/06	0.29	0.10	0.32	U
8/28/06	0.54	0.11	0.32	=
8/28/06	0.25	0.10	0.32	U
8/28/06	0.04	0.10	0.32	U
8/28/06	-0.04	0.09	0.32	U
8/29/06	0.57	0.11	0.32	=
8/29/06	0.40	0.10	0.32	=
8/30/06	0.23	0.10	0.32	U
8/30/06	0.38	0.10	0.32	=
8/31/06	0.39	0.10	0.32	=
8/31/06	0.27	0.10	0.32	U
9/1/06	0.53	0.11	0.32	=
9/1/06	0.23	0.10	0.32	U
9/2/06	0.32	0.10	0.32	=
9/2/06	0.30	0.10	0.32	U
9/3/06	0.42	0.10	0.32	=
9/3/06	0.41	0.10	0.32	=
9/6/06	0.49	0.11	0.31	=

Collection Date	pCi HTO/ml	CU	MDA	Validation Code
9/6/06	0.36	0.10	0.31	=
9/7/06	0.59	0.11	0.31	R
9/7/06	0.18	0.10	0.31	R
9/8/06	0.45	0.10	0.31	=
9/8/06	0.44	0.10	0.31	=
9/9/06	0.43	0.10	0.31	=
9/9/06	0.45	0.10	0.31	=
9/10/06	0.19	0.10	0.31	U
9/10/06	0.25	0.10	0.31	U
9/11/06	0.33	0.10	0.31	=
9/11/06	0.39	0.10	0.31	=
9/12/06	0.27	0.10	0.31	U
9/12/06	0.21	0.10	0.31	U
9/13/06	0.26	0.10	0.31	U
9/13/06	0.39	0.10	0.31	=
9/14/06	0.29	0.10	0.31	U
9/14/06	0.40	0.10	0.31	=
9/15/06	0.49	0.11	0.31	=
9/15/06	0.26	0.10	0.31	U
9/16/06	0.20	0.10	0.31	U
9/16/06	0.24	0.10	0.31	U
9/17/06	0.35	0.10	0.31	=
9/17/06	0.56	0.11	0.31	=
9/18/06	0.27	0.10	0.31	U
9/18/06	0.19	0.10	0.31	U
9/19/06	0.30	0.10	0.31	U
9/19/06	0.22	0.10	0.31	U
9/19/06	-0.09	0.09	0.31	U
9/19/06	0.03	0.10	0.31	U
9/20/06	0.19	0.10	0.31	U
9/20/06	0.16	0.10	0.31	U
9/21/06	0.13	0.10	0.31	U
9/21/06	0.21	0.10	0.31	U
9/26/06	0.18	0.10	0.32	U
9/26/06	0.08	0.10	0.32	U
9/27/06	0.14	0.10	0.32	U
9/27/06	0.23	0.10	0.32	U
9/28/06	0.00	0.10	0.32	U
9/28/06	0.05	0.10	0.32	U
9/29/06	0.17	0.10	0.32	U
9/29/06	0.14	0.10	0.32	U
9/30/06	0.09	0.10	0.32	U
9/30/06	0.10	0.10	0.32	U
10/1/06	0.16	0.10	0.32	U
10/1/06	0.27	0.10	0.32	U
10/2/06	0.07	0.10	0.32	U
10/2/06	0.12	0.10	0.32	U
10/3/06	0.21	0.10	0.32	U
10/3/06	0.17	0.10	0.32	U
10/4/06	0.05	0.10	0.32	U
10/4/06	0.21	0.10	0.32	U
10/5/06	0.08	0.10	0.32	U
10/5/06	0.19	0.10	0.32	U

Collection Date	pCi HTO/ml	CU	MDA	Validation Code
10/16/06	-0.01	0.10	0.32	U
10/16/06	-0.02	0.10	0.32	U
10/17/06	0.48	0.10	0.31	=
10/17/06	0.45	0.10	0.31	=
10/18/06	0.39	0.10	0.31	=
10/18/06	0.29	0.10	0.31	U
10/19/06	0.37	0.10	0.31	=
10/19/06	0.46	0.10	0.31	=
10/20/06	0.39	0.10	0.31	=
10/20/06	0.30	0.10	0.31	U
10/21/06	0.39	0.10	0.31	=
10/21/06	0.48	0.10	0.31	=
10/22/06	0.32	0.10	0.31	=
10/22/06	0.33	0.10	0.31	=
10/23/06	0.24	0.10	0.31	U
10/23/06	0.45	0.10	0.31	=
10/24/06	0.55	0.11	0.31	=
10/24/06	0.29	0.10	0.31	U
10/25/06	0.28	0.10	0.31	U
10/25/06	0.41	0.10	0.31	=
10/26/06	0.42	0.10	0.31	=
10/26/06	0.37	0.10	0.31	=
10/27/06	0.51	0.10	0.31	=
10/27/06	0.52	0.10	0.31	=
10/28/06	0.45	0.10	0.31	=
10/28/06	0.39	0.10	0.31	=
10/29/06	0.42	0.10	0.31	=
10/29/06	0.49	0.10	0.31	=
10/30/06	0.31	0.10	0.31	=
10/30/06	0.51	0.10	0.31	=
10/31/06	0.37	0.10	0.31	=
10/31/06	0.44	0.10	0.31	=
11/1/06	0.45	0.10	0.31	=
11/1/06	0.40	0.10	0.31	=
11/2/06	0.37	0.10	0.31	=
11/2/06	0.38	0.10	0.31	=
11/3/06	0.42	0.10	0.31	=
11/3/06	0.46	0.10	0.31	=
11/4/06	0.82	0.11	0.31	=
11/4/06	0.80	0.11	0.31	=
11/5/06	0.61	0.11	0.31	=
11/5/06	0.80	0.11	0.31	=
11/6/06	0.41	0.10	0.31	=
11/6/06	0.50	0.10	0.31	=
11/7/06	0.65	0.11	0.31	=
11/7/06	0.68	0.11	0.31	=
11/8/06	0.29	0.10	0.31	U
11/8/06	0.31	0.10	0.31	=
11/9/06	0.41	0.10	0.31	=
11/9/06	0.31	0.10	0.31	=
11/13/06	0.03	0.09	0.31	U
11/13/06	-0.12	0.09	0.31	U
11/14/06	0.35	0.10	0.32	=

Collection Date	pCi HTO/ml	CU	MDA	Validation Code
11/14/06	0.41	0.10	0.32	=
11/15/06	0.66	0.11	0.32	=
11/15/06	0.55	0.11	0.32	=
11/16/06	0.64	0.11	0.32	=
11/16/06	0.61	0.11	0.32	=
11/17/06	0.29	0.10	0.32	U
11/17/06	0.36	0.10	0.32	=
11/18/06	0.40	0.10	0.32	=
11/18/06	0.45	0.11	0.32	=
11/19/06	0.80	0.11	0.32	=
11/19/06	0.74	0.11	0.32	=
11/20/06	0.54	0.11	0.32	=
11/20/06	0.63	0.11	0.32	=
11/21/06	0.48	0.11	0.32	=
11/21/06	0.43	0.11	0.32	=
11/22/06	0.29	0.10	0.32	U
11/22/06	0.43	0.11	0.32	=
11/23/06	0.27	0.10	0.32	U
11/23/06	0.47	0.11	0.32	=
11/24/06	0.32	0.10	0.32	=
11/24/06	0.37	0.10	0.32	=
11/25/06	0.49	0.11	0.32	=
11/25/06	0.33	0.10	0.32	=
11/26/06	0.42	0.11	0.32	=
11/26/06	0.47	0.11	0.32	=
11/27/06	0.33	0.10	0.32	=
11/27/06	0.51	0.11	0.32	=
11/28/06	0.29	0.10	0.32	R
11/28/06	1.16	0.12	0.32	R
11/28/06	0.25	0.10	0.32	U
11/28/06	0.42	0.11	0.32	=
11/29/06	0.90	0.11	0.32	R
11/29/06	0.28	0.10	0.32	R
11/29/06	0.35	0.10	0.32	=
11/29/06	0.41	0.10	0.32	=
11/30/06	0.49	0.20	0.63	U
11/30/06	0.46	0.20	0.63	U
12/1/06	0.80	0.11	0.32	=
12/1/06	0.66	0.11	0.32	=
12/2/06	0.49	0.11	0.32	=
12/2/06	0.55	0.11	0.32	=
12/3/06	0.47	0.11	0.32	=
12/3/06	0.37	0.10	0.32	=
12/4/06	0.31	0.10	0.32	U
12/4/06	0.56	0.11	0.32	=
12/5/06	0.00	0.10	0.32	U
12/5/06	0.02	0.10	0.32	U
12/5/06	0.47	0.11	0.32	=
12/5/06	0.56	0.11	0.32	=
12/6/06	0.49	0.11	0.32	=
12/6/06	0.46	0.11	0.32	=
12/7/06	0.50	0.11	0.32	=
12/7/06	0.51	0.11	0.32	=

Collection Date	pCi HTO/ml	CU	MDA	Validation Code
12/8/06	0.47	0.11	0.32	=
12/8/06	0.39	0.11	0.32	=
12/9/06	1.01	0.12	0.32	=
12/9/06	0.99	0.12	0.32	=
12/10/06	0.43	0.11	0.32	=
12/10/06	0.43	0.11	0.32	=
12/11/06	0.37	0.11	0.32	=
12/11/06	0.52	0.11	0.32	=
12/12/06	0.44	0.11	0.32	=
12/12/06	0.37	0.11	0.32	=
12/13/06	2.03	0.14	0.32	=
12/13/06	1.89	0.13	0.32	=
12/14/06	1.03	0.12	0.32	=
12/14/06	1.27	0.12	0.32	=
12/15/06	0.89	0.12	0.32	=
12/15/06	0.70	0.11	0.32	=
12/16/06	0.53	0.11	0.32	=
12/16/06	0.67	0.11	0.32	=
12/17/06	0.58	0.11	0.32	=
12/17/06	0.57	0.11	0.32	=
12/18/06	0.51	0.11	0.32	=
12/18/06	0.59	0.11	0.32	=
12/19/06	0.51	0.11	0.32	=
12/19/06	0.37	0.11	0.32	=
12/20/06	0.33	0.10	0.32	=
12/20/06	0.54	0.11	0.32	=
12/21/06	1.23	0.12	0.32	=
12/21/06	1.32	0.12	0.32	=
12/22/06	0.59	0.11	0.32	=
12/22/06	0.76	0.11	0.32	=
12/23/06	2.63	0.15	0.32	R
12/23/06	0.61	0.11	0.32	R
12/23/06	0.59	0.11	0.33	=
12/23/06	0.42	0.11	0.33	=
12/24/06	0.66	0.11	0.32	=
12/24/06	0.48	0.11	0.32	=
12/25/06	0.74	0.11	0.32	=
12/25/06	0.68	0.11	0.32	=
12/26/06	0.79	0.11	0.32	=
12/26/06	0.79	0.11	0.32	=
12/27/06	0.66	0.11	0.32	=
12/27/06	0.82	0.12	0.32	=
12/28/06	-0.03	0.10	0.32	U
12/28/06	-0.03	0.10	0.32	U
12/28/06	0.71	0.11	0.32	=
12/28/06	0.75	0.11	0.32	=
12/29/06	0.70	0.11	0.32	=
12/29/06	0.71	0.11	0.32	=
12/30/06	0.82	0.11	0.32	=
12/30/06	1.11	0.12	0.32	=
12/30/06	0.79	0.12	0.34	=
12/30/06	1.02	0.12	0.34	=



<b>Average</b>	<b>0.57</b>
<b>Maximum</b>	<b>7.65</b>
<b>Minimum</b>	<b>-0.19</b>
<b>STDEV</b>	<b>0.49</b>

**ISCO 103 HTO Activity for 2005**

Collection Date	pCi HTO/ml	CU	MDA	Validation Code
1/5/06	-0.14	0.09	0.32	U
1/5/06	-0.05	0.09	0.32	U
1/6/06	0.49	0.10	0.31	=
1/6/06	0.37	0.10	0.31	=
1/7/06	0.17	0.10	0.31	U
1/7/06	0.26	0.10	0.31	U
1/8/06	0.20	0.10	0.31	U
1/8/06	0.32	0.10	0.31	=
1/9/06	0.29	0.10	0.31	U
1/9/06	0.40	0.10	0.31	=
1/23/06	-0.03	0.09	0.31	U
1/23/06	0.03	0.09	0.31	U
1/26/06	0.24	0.09	0.28	U
1/26/06	0.40	0.09	0.28	=
1/27/06	0.42	0.09	0.28	=
1/27/06	0.54	0.10	0.28	=
1/28/06	0.33	0.09	0.28	=
1/28/06	0.60	0.10	0.28	=
1/28/06	0.59	0.09	0.25	=
1/28/06	0.46	0.09	0.25	=
1/29/06	0.61	0.10	0.28	=
1/29/06	0.50	0.09	0.28	=
1/30/06	0.78	0.10	0.28	=
1/30/06	0.86	0.10	0.28	=
1/31/06	0.37	0.09	0.28	=
1/31/06	0.47	0.09	0.28	=
2/1/06	0.49	0.09	0.28	=
2/1/06	0.49	0.09	0.28	=
2/8/06	0.17	0.09	0.28	U
2/8/06	0.07	0.09	0.28	U
2/14/06	0.73	0.10	0.29	=
2/14/06	0.83	0.10	0.29	=
2/16/06	0.49	0.10	0.29	=
2/16/06	0.53	0.10	0.29	=
2/17/06	0.50	0.10	0.29	=
2/17/06	0.57	0.10	0.29	=
2/18/06	0.54	0.10	0.29	=
2/18/06	0.41	0.10	0.29	=
2/19/06	0.53	0.10	0.29	=
2/19/06	0.62	0.10	0.29	=
2/20/06	0.63	0.10	0.29	=
2/20/06	0.56	0.10	0.29	=
3/1/06	0.02	0.09	0.29	U
3/1/06	0.06	0.09	0.29	U
3/22/06	-0.08	0.08	0.26	U
3/22/06	0.06	0.08	0.26	U
4/19/06	0.41	0.09	0.26	=
4/19/06	0.44	0.09	0.26	=
4/20/06	0.58	0.09	0.26	=
4/20/06	0.60	0.09	0.26	=
4/21/06	0.57	0.09	0.26	=

Collection Date	pCi HTO/ml	CU	MDA	Validation Code
4/21/06	0.56	0.09	0.26	=
4/22/06	0.61	0.09	0.26	=
4/22/06	0.64	0.09	0.26	=
4/23/06	0.49	0.09	0.26	=
4/23/06	0.39	0.09	0.26	=
4/24/06	0.40	0.09	0.26	=
4/24/06	0.53	0.09	0.26	=
4/25/06	0.63	0.09	0.26	=
4/25/06	0.63	0.09	0.26	=
4/26/06	0.74	0.10	0.26	=
4/26/06	0.59	0.09	0.26	=
4/27/06	0.60	0.09	0.26	=
4/27/06	0.64	0.09	0.26	=
4/28/06	0.62	0.09	0.26	=
4/28/06	0.63	0.09	0.26	=
4/29/06	0.51	0.09	0.26	=
4/29/06	0.60	0.09	0.26	=
4/30/06	0.44	0.09	0.26	=
4/30/06	0.49	0.09	0.26	=
5/1/06	0.47	0.09	0.26	=
5/1/06	0.58	0.09	0.26	=
5/12/06	0.50	0.10	0.28	=
5/12/06	0.47	0.10	0.28	=
5/13/06	0.41	0.10	0.28	=
5/13/06	0.48	0.10	0.28	=
5/14/06	0.24	0.09	0.28	U
5/14/06	0.47	0.10	0.28	=
5/15/06	0.41	0.10	0.28	=
5/15/06	0.53	0.10	0.28	=
5/16/06	0.62	0.10	0.28	=
5/16/06	0.52	0.10	0.28	=
5/17/06	0.54	0.10	0.28	=
5/17/06	0.52	0.10	0.28	=
5/18/06	0.84	0.10	0.28	=
5/18/06	0.96	0.11	0.28	=
5/19/06	0.95	0.11	0.28	=
5/19/06	1.01	0.11	0.28	=
5/20/06	0.69	0.10	0.28	=
5/20/06	0.79	0.10	0.28	=
5/21/06	0.50	0.10	0.28	=
5/21/06	0.59	0.10	0.28	=
5/22/06	0.56	0.10	0.28	=
5/22/06	0.42	0.10	0.28	=
5/23/06	0.53	0.10	0.28	=
5/23/06	0.49	0.10	0.28	=
5/24/06	0.35	0.09	0.28	=
5/24/06	0.41	0.10	0.28	=
5/25/06	0.37	0.09	0.28	=
5/25/06	0.47	0.10	0.28	=
5/26/06	0.34	0.09	0.28	=
5/26/06	0.46	0.10	0.28	=
5/27/06	0.51	0.10	0.28	=

Collection Date	pCi HTO/ml	CU	MDA	Validation Code
5/27/06	0.52	0.10	0.28	=
5/28/06	0.47	0.10	0.28	=
5/28/06	0.32	0.09	0.28	=
5/30/06	0.35	0.09	0.28	=
5/30/06	0.42	0.10	0.28	=
5/31/06	0.69	0.10	0.28	=
5/31/06	0.47	0.10	0.28	=
5/31/06	0.63	0.10	0.28	=
5/31/06	0.72	0.10	0.28	=
6/1/06	0.66	0.10	0.28	=
6/1/06	0.61	0.10	0.28	=
6/2/06	0.77	0.10	0.28	=
6/2/06	0.64	0.10	0.28	=
6/3/06	0.55	0.10	0.28	=
6/3/06	0.55	0.10	0.28	=
6/4/06	0.62	0.10	0.28	=
6/4/06	0.45	0.10	0.28	=
6/5/06	0.02	0.09	0.28	U
6/5/06	0.03	0.09	0.28	U
6/6/06	0.33	0.09	0.29	=
6/6/06	0.47	0.10	0.29	=
6/7/06	0.37	0.10	0.29	=
6/7/06	0.46	0.10	0.29	=
6/8/06	0.40	0.10	0.29	R
6/8/06	0.94	0.11	0.29	R
6/9/06	0.27	0.09	0.29	U
6/9/06	0.42	0.10	0.29	=
6/10/06	0.41	0.10	0.29	=
6/10/06	0.31	0.09	0.29	=
6/11/06	0.33	0.09	0.29	=
6/11/06	0.31	0.09	0.29	=
6/12/06	0.50	0.10	0.29	=
6/12/06	0.43	0.10	0.29	=
6/13/06	0.65	0.10	0.29	=
6/13/06	0.73	0.10	0.29	=
6/14/06	0.60	0.10	0.29	=
6/14/06	0.73	0.10	0.29	=
6/15/06	0.52	0.10	0.29	=
6/15/06	0.53	0.10	0.29	=
6/16/06	0.47	0.10	0.29	=
6/16/06	0.50	0.10	0.29	=
6/17/06	0.45	0.10	0.29	=
6/17/06	0.53	0.10	0.29	=
6/18/06	0.37	0.10	0.29	=
6/18/06	0.42	0.10	0.29	=
6/19/06	0.47	0.10	0.29	=
6/19/06	0.26	0.09	0.29	U
6/19/06	-0.06	0.09	0.29	U
6/19/06	0.00	0.09	0.29	U
6/20/06	0.50	0.10	0.29	=
6/20/06	0.31	0.09	0.29	=
6/21/06	0.52	0.10	0.29	=
6/21/06	0.47	0.10	0.29	=

6/22/06	0.32	0.09	0.29	=
Collection Date	pCi HTO/ml	CU	MDA	Validation Code
6/22/06	0.31	0.09	0.29	=
6/23/06	0.29	0.09	0.29	=
6/23/06	0.29	0.09	0.29	=
6/24/06	0.27	0.09	0.29	U
6/24/06	0.32	0.09	0.29	=
6/25/06	0.37	0.10	0.29	=
6/25/06	0.46	0.10	0.29	=
6/26/06	0.35	0.09	0.29	=
6/26/06	0.42	0.10	0.29	=
6/27/06	0.45	0.10	0.29	=
6/27/06	0.48	0.10	0.29	=
6/28/06	0.48	0.10	0.29	=
6/28/06	0.38	0.10	0.29	=
6/29/06	0.42	0.10	0.29	=
6/29/06	0.33	0.09	0.29	=
6/29/06	0.39	0.09	0.27	=
6/29/06	0.29	0.09	0.27	=
6/30/06	0.55	0.09	0.27	=
6/30/06	0.31	0.09	0.27	=
7/1/06	0.49	0.09	0.27	=
7/1/06	0.24	0.09	0.27	U
7/2/06	0.45	0.09	0.27	=
7/2/06	0.34	0.09	0.27	=
7/3/06	0.35	0.09	0.27	=
7/3/06	0.35	0.09	0.27	=
7/4/06	0.35	0.09	0.27	=
7/4/06	0.39	0.09	0.27	=
7/5/06	0.55	0.09	0.27	=
7/5/06	0.45	0.09	0.27	=
7/6/06	0.65	0.10	0.27	=
7/6/06	0.63	0.10	0.27	=
7/7/06	0.47	0.09	0.27	=
7/7/06	0.46	0.09	0.27	=
7/8/06	0.45	0.09	0.27	=
7/8/06	0.42	0.09	0.27	=
7/9/06	0.60	0.10	0.27	=
7/9/06	0.51	0.09	0.27	=
7/10/06	0.34	0.09	0.27	=
7/10/06	0.35	0.09	0.27	=
7/11/06	0.43	0.09	0.27	=
7/11/06	0.31	0.09	0.27	=
7/12/06	0.65	0.10	0.27	=
7/12/06	0.45	0.09	0.27	=
7/13/06	0.50	0.09	0.27	=
7/13/06	0.36	0.09	0.27	=
7/14/06	0.51	0.09	0.27	=
7/14/06	0.43	0.09	0.27	=
7/15/06	0.44	0.09	0.27	=
7/15/06	0.39	0.09	0.27	=
7/16/06	0.46	0.09	0.27	=
7/16/06	0.52	0.09	0.27	=
7/17/06	0.44	0.09	0.27	=

7/17/06	0.40	0.09	0.27	=
Collection Date	pCi HTO/ml	CU	MDA	Validation Code
7/18/06	0.42	0.09	0.27	=
7/18/06	0.29	0.09	0.27	=
7/19/06	0.32	0.09	0.27	=
7/19/06	0.22	0.09	0.27	U
7/20/06	0.42	0.09	0.27	=
7/20/06	0.43	0.09	0.27	=
7/17/06	0.01	0.08	0.27	U
7/17/06	0.11	0.08	0.27	U
7/21/06	0.31	0.10	0.30	=
7/21/06	0.28	0.10	0.30	U
7/22/06	0.26	0.10	0.30	U
7/22/06	0.18	0.09	0.30	U
7/23/06	0.42	0.10	0.30	=
7/23/06	0.52	0.10	0.30	=
7/24/06	0.26	0.10	0.30	U
7/24/06	0.37	0.10	0.30	=
7/25/06	0.51	0.10	0.30	=
7/25/06	0.32	0.10	0.30	=
7/26/06	0.36	0.10	0.30	=
7/26/06	0.33	0.10	0.30	=
7/27/06	0.39	0.10	0.30	=
7/27/06	0.48	0.10	0.30	=
7/28/06	0.22	0.10	0.30	U
7/28/06	0.19	0.09	0.30	U
7/29/06	0.31	0.10	0.30	=
7/29/06	0.30	0.10	0.30	U
7/30/06	0.15	0.09	0.30	U
7/30/06	0.34	0.10	0.30	=
7/31/06	0.22	0.10	0.30	U
7/31/06	0.29	0.10	0.30	U
8/1/06	0.25	0.10	0.30	U
8/1/06	0.36	0.10	0.30	=
8/2/06	0.24	0.10	0.30	U
8/2/06	0.30	0.10	0.30	U
8/3/06	0.18	0.09	0.30	U
8/3/06	0.25	0.10	0.30	U
8/4/06	0.04	0.09	0.30	U
8/4/06	0.12	0.09	0.30	U
8/5/06	0.23	0.10	0.30	U
8/5/06	0.14	0.09	0.30	U
8/6/06	0.28	0.10	0.30	U
8/6/06	0.25	0.10	0.30	U
8/7/06	2.09	0.13	0.30	R
8/7/06	0.16	0.09	0.30	R
8/8/06	0.34	0.10	0.30	=
8/8/06	0.23	0.10	0.30	U
8/9/06	0.28	0.10	0.30	U
8/9/06	0.25	0.10	0.30	U
8/8/06	0.09	0.09	0.30	U
8/8/06	-0.06	0.09	0.30	U
8/12/06	0.17	0.09	0.29	U
8/12/06	0.21	0.09	0.29	U

Collection Date	pCi HTO/ml	CU	MDA	Validation Code
8/13/06	0.15	0.09	0.29	U
8/13/06	0.22	0.09	0.29	U
8/14/06	0.32	0.10	0.29	=
8/14/06	0.30	0.10	0.29	=
8/15/06	0.28	0.10	0.29	U
8/15/06	0.13	0.09	0.29	U
8/16/06	0.31	0.10	0.29	=
8/16/06	0.20	0.09	0.29	U
8/17/06	0.25	0.09	0.29	U
8/17/06	0.26	0.09	0.29	U
8/18/06	0.37	0.10	0.29	=
8/18/06	0.20	0.09	0.29	U
8/19/06	0.18	0.09	0.29	U
8/19/06	0.45	0.10	0.29	=
8/20/06	0.34	0.10	0.29	=
8/20/06	0.22	0.09	0.29	U
8/21/06	0.21	0.09	0.29	U
8/21/06	0.13	0.09	0.29	U
8/22/06	0.13	0.09	0.29	U
8/22/06	0.31	0.10	0.29	=
8/23/06	0.10	0.09	0.29	U
8/23/06	0.13	0.09	0.29	U
8/24/06	0.17	0.09	0.29	U
8/24/06	0.21	0.09	0.29	U
8/25/06	0.20	0.09	0.29	U
8/25/06	0.16	0.09	0.29	U
8/26/06	0.34	0.10	0.29	=
8/26/06	0.13	0.09	0.29	U
8/27/06	0.30	0.10	0.29	=
8/27/06	0.29	0.10	0.29	U
8/28/06	0.26	0.09	0.29	U
8/28/06	0.19	0.09	0.29	U
8/29/06	0.10	0.09	0.29	U
8/29/06	0.19	0.09	0.29	U
8/28/06	-0.10	0.09	0.29	U
8/28/06	-0.10	0.09	0.29	U
8/30/06	0.21	0.09	0.29	U
8/30/06	0.23	0.09	0.29	U
8/31/06	0.23	0.09	0.29	U
8/31/06	0.27	0.10	0.29	U
9/1/06	0.15	0.09	0.29	U
9/1/06	0.19	0.09	0.29	U
9/2/06	0.23	0.09	0.29	U
9/2/06	0.25	0.09	0.29	U
9/3/06	0.20	0.09	0.29	U
9/3/06	0.24	0.09	0.29	U
9/4/06	0.12	0.09	0.29	U
9/4/06	0.12	0.09	0.29	U
9/6/06	0.36	0.09	0.27	=
9/6/06	0.29	0.09	0.27	=
9/7/06	0.43	0.09	0.27	=
9/7/06	0.34	0.09	0.27	=
9/8/06	0.36	0.09	0.27	=

Collection Date	pCi HTO/ml	CU	MDA	Validation Code
9/8/06	0.34	0.09	0.27	=
9/9/06	0.41	0.09	0.27	=
9/9/06	0.31	0.09	0.27	=
9/10/06	0.32	0.09	0.27	=
9/10/06	0.30	0.09	0.27	=
9/11/06	0.38	0.09	0.27	=
9/11/06	0.20	0.09	0.27	U
9/12/06	0.27	0.09	0.27	=
9/12/06	0.31	0.09	0.27	=
9/13/06	0.23	0.09	0.27	U
9/13/06	0.17	0.09	0.27	U
9/14/06	0.15	0.09	0.27	U
9/14/06	0.33	0.09	0.27	=
9/15/06	0.24	0.09	0.27	U
9/15/06	0.31	0.09	0.27	=
9/16/06	0.32	0.09	0.27	=
9/16/06	0.39	0.09	0.27	=
9/17/06	0.18	0.09	0.27	U
9/17/06	0.19	0.09	0.27	U
9/18/06	0.14	0.09	0.27	U
9/18/06	0.25	0.09	0.27	U
9/19/06	0.30	0.09	0.27	=
9/19/06	0.16	0.09	0.27	U
9/19/06	0.18	0.09	0.27	U
9/19/06	0.01	0.08	0.27	U
9/20/06	0.16	0.09	0.27	U
9/20/06	0.23	0.09	0.27	U
9/21/06	0.20	0.09	0.27	U
9/21/06	0.06	0.08	0.27	U
9/22/06	0.32	0.09	0.27	R
9/22/06	0.01	0.08	0.27	R
9/25/06	0.14	0.09	0.27	U
9/25/06	0.31	0.09	0.27	=
9/26/06	0.17	0.09	0.28	U
9/26/06	0.02	0.09	0.28	U
9/27/06	0.14	0.09	0.28	U
9/27/06	0.16	0.09	0.28	U
9/28/06	0.21	0.09	0.28	U
9/28/06	0.20	0.09	0.28	U
9/29/06	0.21	0.09	0.28	U
9/29/06	0.26	0.09	0.28	U
9/30/06	0.21	0.09	0.28	U
9/30/06	0.23	0.09	0.28	U
10/1/06	0.21	0.09	0.28	U
10/1/06	0.43	0.10	0.28	=
10/2/06	0.24	0.09	0.28	U
10/2/06	0.26	0.09	0.28	U
10/3/06	0.48	0.10	0.28	=
10/3/06	0.22	0.09	0.28	U
10/4/06	0.20	0.09	0.28	U
10/4/06	0.15	0.09	0.28	U
10/5/06	0.16	0.09	0.28	U
10/5/06	0.27	0.09	0.28	U



10/6/06 Collection Date	0.23 pCi HTO/ml	0.09 CU	0.28 MDA	U Validation Code
10/6/06	0.13	0.09	0.28	U
10/7/06	0.14	0.09	0.28	U
10/7/06	0.07	0.09	0.28	U
10/8/06	0.20	0.09	0.28	U
10/8/06	0.24	0.09	0.28	U
10/9/06	0.09	0.09	0.28	U
10/9/06	0.25	0.09	0.28	U
10/10/06	0.32	0.09	0.28	=
10/10/06	0.14	0.09	0.28	U
10/11/06	0.01	0.09	0.28	U
10/11/06	0.16	0.09	0.28	U
10/12/06	0.25	0.09	0.28	U
10/12/06	0.20	0.09	0.28	U
10/13/06	0.17	0.09	0.28	U
10/13/06	0.25	0.09	0.28	U
10/14/06	0.25	0.09	0.28	U
10/14/06	0.31	0.09	0.28	=
10/15/06	0.10	0.09	0.28	U
10/15/06	0.16	0.09	0.28	U
10/16/06	0.15	0.09	0.28	U
10/16/06	0.24	0.09	0.28	U
10/17/06	0.27	0.09	0.28	U
10/17/06	0.25	0.09	0.28	U
10/18/06	0.26	0.09	0.28	U
10/18/06	0.13	0.09	0.28	U
10/19/06	0.15	0.09	0.28	U
10/19/06	0.21	0.09	0.28	U
10/16/06	0.02	0.09	0.28	U
10/16/06	-0.03	0.09	0.28	U
10/17/06	0.11	0.10	0.31	U
10/17/06	0.27	0.10	0.31	U
10/18/06	0.17	0.10	0.31	U
10/18/06	0.18	0.10	0.31	U
10/19/06	0.21	0.10	0.31	U
10/19/06	0.19	0.10	0.31	U
10/20/06	0.17	0.10	0.31	U
10/20/06	0.13	0.10	0.31	U
10/21/06	0.25	0.10	0.31	U
10/21/06	0.08	0.10	0.31	U
10/22/06	0.52	0.11	0.31	=
10/22/06	0.53	0.11	0.31	=
10/23/06	0.50	0.11	0.31	=
10/23/06	0.48	0.11	0.31	=
10/24/06	0.21	0.10	0.31	U
10/24/06	0.35	0.10	0.31	=
10/25/06	0.27	0.10	0.31	U
10/25/06	0.27	0.10	0.31	U
10/26/06	0.32	0.10	0.31	=
10/26/06	0.27	0.10	0.31	U
10/27/06	0.26	0.10	0.31	U
10/27/06	0.24	0.10	0.31	U
10/28/06	0.35	0.10	0.31	=
10/28/06	0.30	0.10	0.31	U

Collection Date	pCi HTO/ml	CU	MDA	Validation Code
10/29/06	0.37	0.10	0.31	=
10/29/06	0.41	0.10	0.31	=
10/30/06	0.36	0.10	0.31	=
10/30/06	0.15	0.10	0.31	U
10/31/06	0.24	0.10	0.31	U
10/31/06	0.28	0.10	0.31	U
11/1/06	0.27	0.10	0.31	U
11/1/06	0.28	0.10	0.31	U
11/2/06	0.29	0.10	0.31	U
11/2/06	0.23	0.10	0.31	U
11/3/06	0.22	0.10	0.31	U
11/3/06	0.35	0.10	0.31	=
11/4/06	0.41	0.10	0.31	=
11/4/06	0.29	0.10	0.31	U
11/5/06	0.54	0.11	0.31	=
11/5/06	0.53	0.11	0.31	=
11/6/06	0.48	0.11	0.31	=
11/6/06	0.44	0.10	0.31	=
11/7/06	0.42	0.10	0.31	=
11/7/06	0.43	0.10	0.31	=
11/8/06	0.61	0.11	0.31	=
11/8/06	0.68	0.11	0.31	=
11/9/06	0.77	0.11	0.31	=
11/9/06	0.49	0.11	0.31	=
11/9/06	0.70	0.11	0.30	=
11/9/06	0.88	0.11	0.30	=
11/13/06	-0.17	0.09	0.31	U
11/13/06	0.01	0.10	0.31	U
11/14/06	0.55	0.10	0.29	=
11/14/06	0.71	0.10	0.29	=
11/15/06	0.56	0.10	0.29	=
11/15/06	0.75	0.10	0.29	=
11/16/06	0.53	0.10	0.29	=
11/16/06	0.47	0.10	0.29	=
11/17/06	0.52	0.10	0.29	=
11/17/06	0.58	0.10	0.29	=
11/18/06	0.70	0.10	0.29	=
11/18/06	0.76	0.11	0.29	=
11/19/06	0.72	0.10	0.29	=
11/19/06	0.76	0.10	0.29	=
11/20/06	0.63	0.10	0.29	=
11/20/06	0.58	0.10	0.29	=
11/21/06	0.46	0.10	0.29	=
11/21/06	0.60	0.10	0.29	=
11/22/06	0.62	0.10	0.29	=
11/22/06	0.63	0.10	0.29	=
11/23/06	0.53	0.10	0.29	=
11/23/06	0.56	0.10	0.29	=
11/24/06	0.63	0.10	0.29	=
11/24/06	0.57	0.10	0.29	=
11/25/06	0.50	0.10	0.29	=
11/25/06	0.58	0.10	0.29	=

11/26/06 Collection Date	0.62 pCi HTO/ml	0.10 CU	0.29 MDA	= Validation Code
11/26/06	0.62	0.10	0.29	=
11/27/06	0.60	0.10	0.29	=
11/27/06	0.46	0.10	0.29	=
11/28/06	0.57	0.10	0.29	=
11/28/06	0.47	0.10	0.29	=
11/29/06	0.71	0.10	0.29	=
11/29/06	0.62	0.10	0.29	=
11/30/06	0.38	0.10	0.29	=
11/30/06	0.53	0.10	0.29	=
12/1/06	0.69	0.10	0.29	=
12/1/06	0.82	0.11	0.29	=
12/2/06	0.57	0.10	0.29	=
12/2/06	0.68	0.10	0.29	=
12/3/06	0.57	0.10	0.29	=
12/3/06	0.72	0.10	0.29	=
12/4/06	0.57	0.10	0.29	=
12/4/06	0.57	0.10	0.29	=
12/5/06	0.06	0.09	0.29	U
12/5/06	-0.12	0.09	0.29	U
12/5/06	1.07	0.11	0.29	=
12/5/06	0.68	0.10	0.29	=
12/5/06	0.71	0.10	0.28	=
12/5/06	0.52	0.10	0.28	=
12/6/06	0.73	0.10	0.29	=
12/6/06	0.49	0.10	0.29	=
12/6/06	0.61	0.10	0.28	=
12/6/06	0.66	0.10	0.28	=
12/9/06	0.41	0.10	0.29	=
12/9/06	0.54	0.10	0.29	=
12/10/06	0.63	0.10	0.29	=
12/10/06	0.55	0.10	0.29	=
12/11/06	0.63	0.10	0.29	=
12/11/06	0.63	0.10	0.29	=
12/12/06	0.51	0.10	0.29	=
12/12/06	0.66	0.10	0.29	=
12/13/06	0.74	0.10	0.29	=
12/13/06	0.56	0.10	0.29	=
12/14/06	0.80	0.10	0.29	=
12/14/06	0.67	0.10	0.29	=
12/15/06	0.59	0.10	0.29	=
12/15/06	0.71	0.10	0.29	=
12/16/06	0.57	0.10	0.29	=
12/16/06	0.67	0.10	0.29	=
12/17/06	0.39	0.10	0.29	=
12/17/06	0.45	0.10	0.29	=
12/18/06	0.65	0.10	0.29	=
12/18/06	0.64	0.10	0.29	=
12/19/06	0.65	0.10	0.29	=
12/19/06	0.57	0.10	0.29	=
12/20/06	0.54	0.10	0.29	=
12/20/06	0.53	0.10	0.29	=
12/21/06	1.28	0.11	0.29	=
12/21/06	1.01	0.11	0.29	=

Collection Date	pCi HTO/ml	CU	MDA	Validation Code
12/22/06	0.49	0.10	0.29	=
12/22/06	0.58	0.10	0.29	=
12/23/06	0.62	0.10	0.29	=
12/23/06	0.38	0.10	0.29	=
12/23/06	0.66	0.10	0.28	=
12/23/06	0.64	0.10	0.28	=
12/24/06	0.59	0.10	0.29	=
12/24/06	0.79	0.10	0.29	=
12/25/06	0.54	0.10	0.29	=
12/25/06	0.53	0.10	0.29	=
12/26/06	0.78	0.10	0.29	=
12/26/06	0.64	0.10	0.29	=
12/27/06	0.56	0.10	0.29	=
12/27/06	0.59	0.10	0.29	=
12/28/06	0.02	0.09	0.29	U
12/28/06	0.03	0.09	0.29	U
12/28/06	0.78	0.11	0.30	=
12/28/06	0.63	0.10	0.30	=
12/29/06	0.67	0.10	0.30	=
12/29/06	0.76	0.11	0.30	=
12/30/06	0.69	0.10	0.30	=
12/30/06	0.73	0.11	0.30	=
<b>Average</b>	<b>0.40</b>			
<b>Maximum</b>	<b>2.09</b>			
<b>Minimum</b>	<b>-0.17</b>			
<b>STDEV</b>	<b>0.22</b>			

**ISCO EDRN HTO Activity for 2005**

Collection Date	pCi HTO/ml	CU	MDA	Validation Code
1/5/06	-0.04	0.09	0.31	U
1/5/06	-0.02	0.09	0.31	U
1/6/06	132.42	0.76	0.31	=
1/6/06	135.64	0.77	0.31	=
1/7/06	12.38	0.25	0.31	=
1/7/06	11.62	0.24	0.31	=
1/8/06	31.25	0.38	0.31	=
1/8/06	31.63	0.38	0.31	=
1/9/06	60.17	0.52	0.31	=
1/9/06	62.27	0.53	0.31	=
1/10/06	10.02	0.23	0.31	=
1/10/06	9.37	0.22	0.31	=
1/11/06	31.58	0.38	0.31	=
1/11/06	30.64	0.38	0.31	=
1/12/06	73.51	0.57	0.31	=
1/12/06	74.27	0.57	0.31	=
1/13/06	56.63	0.50	0.31	=
1/13/06	55.62	0.50	0.31	=
1/14/06	8.64	0.22	0.31	=
1/14/06	8.53	0.21	0.31	=
1/15/06	30.03	0.37	0.31	=
1/15/06	30.08	0.37	0.31	=
1/16/06	48.73	0.47	0.31	=
1/16/06	47.85	0.46	0.31	=
1/17/06	90.77	0.63	0.31	=
1/17/06	91.99	0.64	0.31	=
1/18/06	39.28	0.42	0.31	=
1/18/06	39.09	0.42	0.31	=
1/19/06	9.44	0.22	0.31	=
1/19/06	9.16	0.22	0.31	=
1/20/06	37.54	0.41	0.31	=
1/20/06	37.15	0.41	0.31	=
1/21/06	111.79	0.70	0.31	=
1/21/06	110.43	0.70	0.31	=
1/22/06	131.63	0.76	0.31	=
1/22/06	131.68	0.76	0.31	=
2/14/06	135.63	0.74	0.29	=
2/14/06	136.67	0.74	0.29	=
2/15/06	79.87	0.57	0.29	=
2/15/06	79.95	0.57	0.29	=
2/16/06	96.23	0.63	0.29	=
2/16/06	93.81	0.62	0.29	=
2/17/06	95.66	0.62	0.29	=
2/17/06	96.83	0.63	0.29	=
2/18/06	39.83	0.41	0.29	=
2/18/06	39.71	0.41	0.29	=
2/19/06	157.04	0.80	0.29	=
2/19/06	157.21	0.80	0.29	=
2/20/06	159.93	0.80	0.29	=
2/20/06	162.31	0.81	0.29	=
3/1/06	0.07	0.09	0.29	U

Collection Date	pCi HTO/ml	CU	MDA	Validation Code
3/1/06	0.00	0.09	0.29	U
3/22/06	0.03	0.09	0.28	U
3/22/06	-0.01	0.09	0.28	U
3/30/06	151.72	0.79	0.28	=
3/30/06	153.67	0.79	0.28	=
3/31/06	134.67	0.74	0.28	=
3/31/06	137.12	0.75	0.28	=
4/1/06	21.65	0.31	0.28	=
4/1/06	22.04	0.31	0.28	=
4/2/06	92.09	0.62	0.28	=
4/2/06	92.87	0.62	0.28	=
4/3/06	37.63	0.40	0.28	=
4/3/06	38.21	0.40	0.28	=
4/4/06	61.91	0.51	0.28	=
4/4/06	63.82	0.51	0.28	=
4/5/06	164.45	0.82	0.28	=
4/5/06	164.31	0.82	0.28	=
4/6/06	131.88	0.73	0.28	=
4/6/06	133.54	0.74	0.28	=
4/7/06	28.73	0.35	0.28	=
4/7/06	28.23	0.35	0.28	=
4/8/06	45.96	0.44	0.28	=
4/8/06	46.11	0.44	0.28	=
4/9/06	164.53	0.82	0.28	=
4/9/06	165.13	0.82	0.28	=
4/20/06	173.55	0.88	0.32	=
4/20/06	172.47	0.87	0.32	=
4/21/06	104.58	0.68	0.32	=
4/21/06	105.02	0.68	0.32	=
4/22/06	53.45	0.49	0.32	=
4/22/06	54.05	0.49	0.32	=
4/23/06	85.46	0.62	0.32	=
4/23/06	85.31	0.62	0.32	=
4/24/06	119.75	0.73	0.32	=
4/24/06	121.52	0.73	0.32	=
4/25/06	44.44	0.45	0.32	=
4/25/06	44.58	0.45	0.32	=
4/26/06	88.57	0.63	0.32	=
4/26/06	87.16	0.62	0.32	=
4/27/06	117.92	0.72	0.32	=
4/27/06	119.62	0.73	0.32	=
4/28/06	133.39	0.77	0.32	=
4/28/06	137.15	0.78	0.32	=
4/29/06	146.99	0.81	0.32	=
4/29/06	147.18	0.81	0.32	=
4/30/06	37.99	0.42	0.32	=
4/30/06	37.03	0.41	0.32	=
5/1/06	96.23	0.65	0.32	=
5/1/06	96.30	0.66	0.32	=
5/2/06	81.97	0.61	0.32	=
5/2/06	83.44	0.61	0.32	=
5/3/06	158.52	0.84	0.32	=
5/3/06	153.68	0.82	0.32	=

Collection Date	pCi HTO/ml	CU	MDA	Validation Code
5/4/06	175.23	0.88	0.32	=
5/4/06	176.75	0.88	0.32	=
5/5/06	200.55	0.94	0.32	=
5/5/06	200.25	0.94	0.32	=
5/6/06	212.58	0.97	0.32	=
5/6/06	212.73	0.97	0.32	=
5/7/06	217.23	0.98	0.32	=
5/7/06	211.94	0.97	0.32	=
5/8/06	246.92	1.04	0.32	=
5/8/06	247.84	1.04	0.32	=
5/9/06	231.89	1.01	0.32	=
5/9/06	231.27	1.01	0.32	=
5/10/06	15.27	0.28	0.32	=
5/10/06	15.66	0.28	0.32	=
5/11/06	92.19	0.64	0.32	=
5/11/06	92.29	0.64	0.32	=
5/9/06	-0.18	0.09	0.32	U
5/9/06	-0.08	0.09	0.32	U
5/12/06	40.48	0.41	0.29	=
5/12/06	40.18	0.41	0.29	=
5/13/06	32.34	0.37	0.29	=
5/13/06	32.45	0.37	0.29	=
5/14/06	22.35	0.31	0.29	=
5/14/06	22.34	0.31	0.29	=
5/15/06	34.37	0.38	0.29	=
5/15/06	33.99	0.38	0.29	=
5/16/06	55.05	0.48	0.29	=
5/16/06	55.13	0.48	0.29	=
5/17/06	59.13	0.49	0.29	=
5/17/06	59.69	0.50	0.29	=
5/18/06	9.66	0.22	0.29	=
5/18/06	9.91	0.22	0.29	=
5/19/06	54.94	0.48	0.29	=
5/19/06	54.72	0.47	0.29	=
5/20/06	70.99	0.54	0.29	=
5/20/06	70.79	0.54	0.29	=
5/21/06	139.68	0.75	0.29	=
5/21/06	141.49	0.76	0.29	=
5/22/06	194.52	0.88	0.29	=
5/22/06	196.90	0.89	0.29	=
5/23/06	232.23	0.97	0.29	=
5/23/06	233.17	0.97	0.29	=
5/24/06	203.69	0.90	0.29	=
5/24/06	200.20	0.90	0.29	=
5/25/06	25.53	0.33	0.29	=
5/25/06	25.70	0.33	0.29	=
5/26/06	13.00	0.24	0.29	=
5/26/06	12.40	0.24	0.29	=
5/27/06	109.05	0.66	0.29	=
5/27/06	111.80	0.67	0.29	=
6/5/06	-0.03	0.09	0.29	U
6/5/06	-0.01	0.09	0.29	U
6/6/06	144.30	0.77	0.29	=

Collection Date	pCi HTO/ml	CU	MDA	Validation Code
6/6/06	142.81	0.76	0.29	=
6/7/06	177.27	0.85	0.29	=
6/7/06	179.66	0.85	0.29	=
6/8/06	206.94	0.92	0.29	=
6/8/06	204.68	0.91	0.29	=
6/9/06	90.36	0.61	0.29	=
6/9/06	88.88	0.60	0.29	=
6/10/06	111.04	0.67	0.29	=
6/10/06	112.37	0.68	0.29	=
6/11/06	103.11	0.65	0.29	=
6/11/06	100.39	0.64	0.29	=
6/12/06	8.70	0.21	0.29	=
6/12/06	9.40	0.21	0.29	=
6/13/06	19.43	0.29	0.29	=
6/13/06	19.29	0.29	0.29	=
6/14/06	60.90	0.50	0.29	=
6/14/06	61.81	0.51	0.29	=
6/15/06	105.86	0.66	0.29	=
6/15/06	104.93	0.66	0.29	=
6/16/06	147.12	0.77	0.29	=
6/16/06	147.95	0.78	0.29	=
6/17/06	179.27	0.85	0.29	=
6/17/06	182.18	0.86	0.29	=
6/19/06	-0.04	0.09	0.29	U
6/19/06	0.00	0.09	0.29	U
6/18/06	201.19	0.90	0.29	=
6/18/06	199.01	0.90	0.29	=
6/19/06	223.92	0.95	0.29	=
6/19/06	223.61	0.95	0.29	=
6/20/06	93.52	0.62	0.29	=
6/20/06	93.81	0.62	0.29	=
6/21/06	37.26	0.40	0.29	=
6/21/06	38.22	0.40	0.29	=
6/22/06	90.38	0.61	0.29	=
6/22/06	89.44	0.61	0.29	=
6/23/06	101.61	0.65	0.29	=
6/23/06	103.44	0.65	0.29	=
6/24/06	10.19	0.22	0.29	=
6/24/06	10.56	0.22	0.29	=
6/25/06	6.68	0.19	0.29	=
6/25/06	6.12	0.18	0.29	=
6/26/06	33.51	0.38	0.29	=
6/26/06	34.40	0.38	0.29	=
6/27/06	60.46	0.50	0.29	=
6/27/06	61.89	0.51	0.29	=
6/28/06	98.99	0.64	0.29	=
6/28/06	99.05	0.64	0.29	=
6/29/06	128.37	0.72	0.29	=
6/29/06	127.26	0.72	0.29	=
7/17/06	0.28	0.09	0.28	=
7/17/06	0.10	0.09	0.28	U
7/21/06	66.90	0.53	0.29	=
7/21/06	68.31	0.53	0.29	=



Collection Date	pCi HTO/ml	CU	MDA	Validation Code
7/22/06	9.57	0.22	0.29	=
7/22/06	9.43	0.21	0.29	=
7/23/06	17.55	0.28	0.29	=
7/23/06	17.33	0.28	0.29	=
7/24/06	50.69	0.46	0.29	=
7/24/06	49.47	0.46	0.29	=
7/25/06	79.71	0.57	0.29	=
7/25/06	79.50	0.57	0.29	=
7/26/06	107.96	0.66	0.28	=
7/26/06	106.91	0.66	0.28	=
7/27/06	139.36	0.75	0.28	=
7/27/06	138.38	0.75	0.28	=
7/28/06	123.56	0.71	0.28	=
7/28/06	123.38	0.71	0.28	=
7/29/06	11.82	0.23	0.28	=
7/29/06	11.58	0.23	0.28	=
7/30/06	28.42	0.35	0.28	=
7/30/06	27.90	0.34	0.28	=
7/31/06	55.69	0.48	0.28	=
7/31/06	56.37	0.48	0.28	=
8/1/06	76.47	0.56	0.28	=
8/1/06	78.02	0.57	0.28	=
8/2/06	17.11	0.28	0.28	=
8/2/06	16.43	0.27	0.28	=
8/3/06	41.39	0.42	0.28	=
8/3/06	41.93	0.42	0.28	=
8/4/06	70.30	0.54	0.28	=
8/4/06	69.19	0.53	0.28	=
8/5/06	82.45	0.58	0.28	=
8/5/06	84.10	0.59	0.28	=
8/6/06	94.87	0.62	0.28	=
8/6/06	95.37	0.62	0.28	=
8/12/06	20.99	0.30	0.28	=
8/12/06	21.03	0.30	0.28	=
8/13/06	5.09	0.17	0.28	=
8/13/06	5.11	0.17	0.28	=
8/14/06	13.18	0.25	0.28	=
8/14/06	12.54	0.24	0.28	=
8/15/06	15.21	0.26	0.28	=
8/15/06	14.87	0.26	0.28	=
8/16/06	11.44	0.23	0.28	=
8/16/06	11.79	0.23	0.28	=
8/17/06	10.69	0.22	0.28	=
8/17/06	10.73	0.22	0.28	=
8/18/06	30.93	0.36	0.28	=
8/18/06	30.59	0.36	0.28	=
8/19/06	49.60	0.46	0.28	=
8/19/06	49.25	0.45	0.28	=
8/20/06	20.79	0.30	0.28	=
8/20/06	21.35	0.31	0.28	=
8/21/06	10.01	0.22	0.28	=
8/21/06	10.42	0.22	0.28	=
8/22/06	10.48	0.22	0.28	=

Collection Date	pCi HTO/ml	CU	MDA	Validation Code
8/22/06	10.07	0.22	0.28	=
8/23/06	21.39	0.31	0.28	=
8/23/06	21.56	0.31	0.28	=
8/24/06	42.02	0.42	0.28	=
8/24/06	41.87	0.42	0.28	=
8/25/06	63.41	0.51	0.28	=
8/25/06	63.94	0.51	0.28	=
8/26/06	86.98	0.60	0.28	=
8/26/06	87.23	0.60	0.28	=
8/27/06	101.90	0.65	0.28	=
8/27/06	99.46	0.64	0.28	=
8/28/06	113.23	0.68	0.28	=
8/28/06	113.22	0.68	0.28	=
8/29/06	92.49	0.62	0.28	=
8/29/06	91.58	0.61	0.28	=
8/30/06	1.94	0.12	0.28	=
8/30/06	2.13	0.13	0.28	=
8/31/06	10.39	0.22	0.28	=
8/31/06	9.35	0.21	0.28	=
9/1/06	1.95	0.12	0.28	=
9/1/06	2.06	0.13	0.28	=
9/2/06	8.83	0.21	0.28	=
9/2/06	8.87	0.21	0.28	=
9/3/06	2.24	0.13	0.28	=
9/3/06	2.34	0.13	0.28	=
9/4/06	8.03	0.20	0.28	=
9/4/06	7.84	0.20	0.28	=
9/19/06	0.51	0.10	0.30	R
9/19/06	-0.03	0.09	0.30	R
8/28/06	0.04	0.09	0.28	U
8/28/06	0.03	0.09	0.28	U
9/26/06	26.03	0.34	0.30	=
9/26/06	25.22	0.33	0.30	=
9/27/06	45.54	0.44	0.30	=
9/27/06	44.59	0.43	0.30	=
9/28/06	66.53	0.53	0.30	=
9/28/06	65.93	0.52	0.30	=
9/29/06	92.54	0.62	0.30	=
9/29/06	88.91	0.61	0.30	=
9/30/06	100.62	0.64	0.30	=
9/30/06	99.89	0.64	0.30	=
10/1/06	81.75	0.58	0.30	=
10/1/06	80.22	0.58	0.30	=
10/2/06	30.17	0.36	0.30	=
10/2/06	28.96	0.35	0.30	=
10/3/06	5.45	0.17	0.30	=
10/3/06	5.52	0.17	0.30	=
10/4/06	23.23	0.32	0.30	=
10/4/06	22.93	0.32	0.30	=
10/5/06	55.44	0.48	0.30	=
10/5/06	54.28	0.48	0.30	=
10/6/06	80.96	0.58	0.30	=
10/6/06	82.33	0.58	0.30	=

Collection Date	pCi HTO/ml	CU	MDA	Validation Code
10/7/06	104.35	0.66	0.30	=
10/7/06	106.82	0.66	0.30	=
10/8/06	108.76	0.67	0.30	=
10/8/06	106.98	0.66	0.30	=
10/9/06	143.24	0.77	0.30	=
10/9/06	140.00	0.76	0.30	=
10/25/06	153.01	0.79	0.28	=
10/25/06	154.20	0.80	0.28	=
10/26/06	7.55	0.19	0.28	=
10/26/06	7.46	0.19	0.28	=
10/27/06	28.66	0.35	0.28	=
10/27/06	28.65	0.35	0.28	=
10/28/06	34.78	0.38	0.28	=
10/28/06	34.63	0.38	0.28	=
10/29/06	116.50	0.69	0.28	=
10/29/06	115.96	0.69	0.28	=
10/30/06	142.63	0.77	0.28	=
10/30/06	143.87	0.77	0.28	=
10/31/06	47.63	0.45	0.28	=
10/31/06	47.28	0.45	0.28	=
11/1/06	19.27	0.29	0.28	=
11/1/06	19.41	0.29	0.28	=
11/2/06	80.56	0.58	0.28	=
11/2/06	78.99	0.57	0.28	=
11/13/06	-0.01	0.08	0.28	U
11/13/06	0.09	0.09	0.28	U
11/14/06	227.21	1.02	0.31	=
11/14/06	229.66	1.03	0.31	=
11/15/06	97.01	0.67	0.31	=
11/15/06	96.62	0.67	0.31	=
11/16/06	91.00	0.65	0.31	=
11/16/06	93.92	0.66	0.31	=
11/17/06	23.32	0.34	0.31	=
11/17/06	23.21	0.34	0.31	=
11/18/06	132.73	0.78	0.31	=
11/18/06	134.48	0.79	0.31	=
12/5/06	0.07	0.10	0.31	U
12/5/06	0.13	0.10	0.31	U
12/29/06	233.48	1.04	0.33	=
12/29/06	233.17	1.04	0.33	=
12/30/06	265.66	1.11	0.33	=
12/30/06	269.28	1.11	0.33	=
<b>Average</b>	77.01			
<b>Maximum</b>	-0.18			
<b>Minimum</b>	269.28			
<b>STDEV</b>	64.47			

**APPENDIX 4. Porous Cups**

West Hillside Porous Cups HTO Data

Location	Collection Date	HTO (pCi/l)	CU
M2(LSS)	9/20/2006	350200	898
M2(LSS)	9/20/2006	349200	897
Location	Collection Date	HTO (pCi/l)	CU
M4(LSS)	2/23/2006	-1.0	5.2
M4(LSS)	2/23/2006	-3.7	5.1
Location	Collection Date	HTO (pCi/l)	CU
N2(LSS)	2/23/2006	251500	231
N2(LSS)	2/23/2006	250100	231
Location	Collection Date	HTO (pCi/l)	CU
M5(LSS)	2/23/2006	547	12
M5(LSS)	2/23/2006	545	12
Location	Collection Date	HTO (pCi/l)	CU
S2(LSS)	9/20/2006	1724000	1991
S2(LSS)	9/20/2006	1709000	1982

APPENDIX 5. Figures.

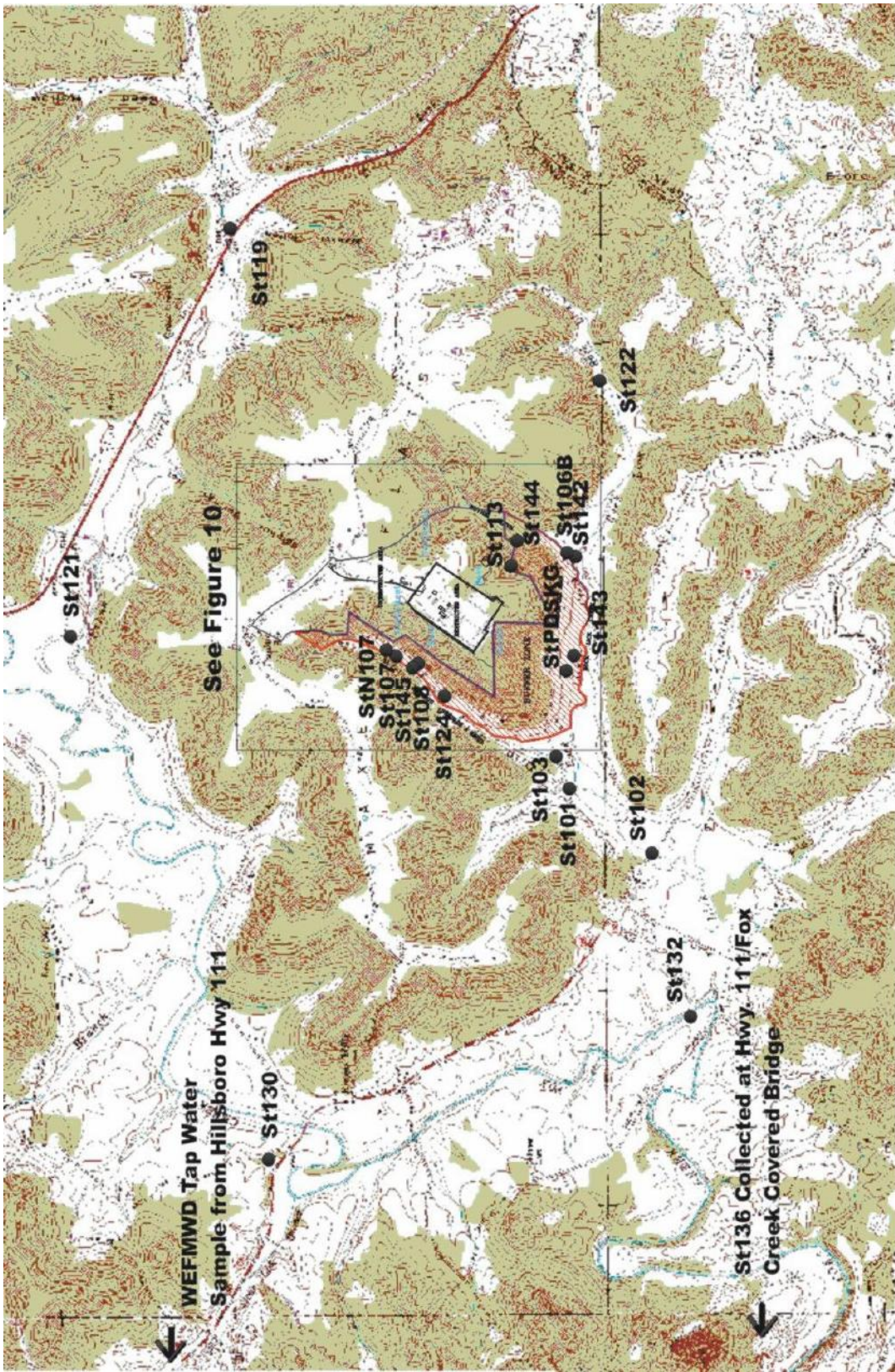


Figure 1. Background and off-site surface water sampling locations



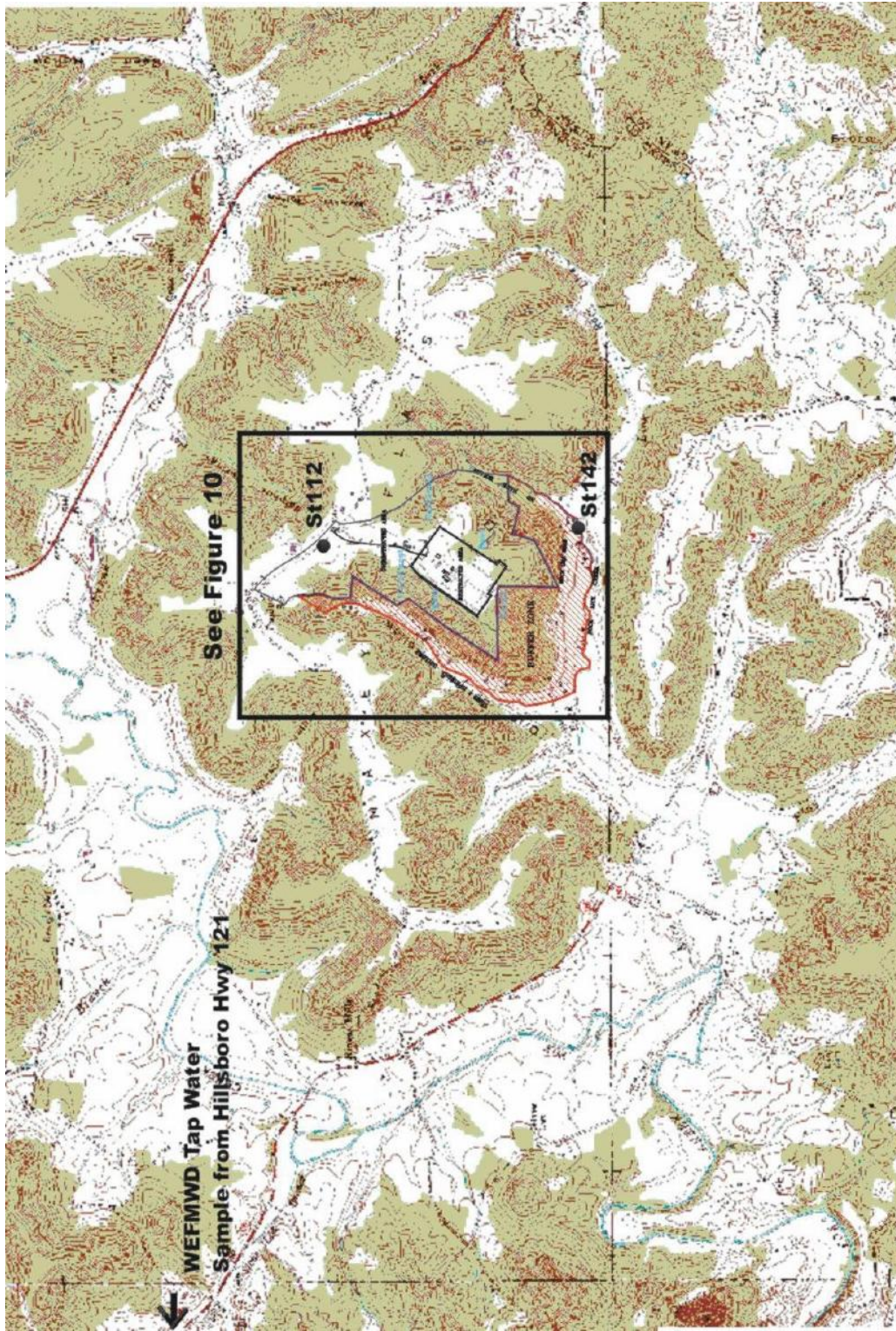


Figure 2. Background and off-site groundwater and drinking water locations



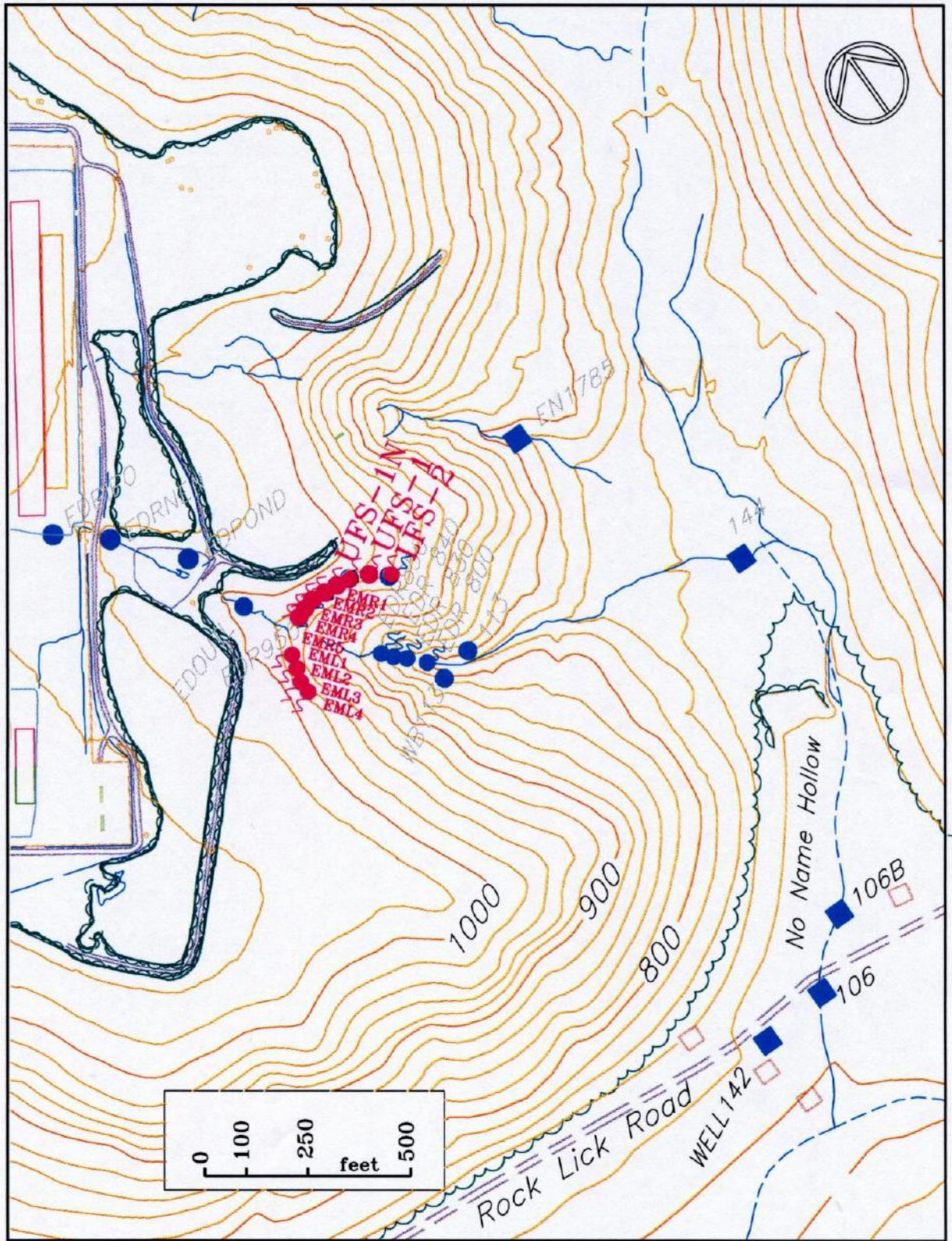


Figure 3. East Drain Hillside seep sampling locations.



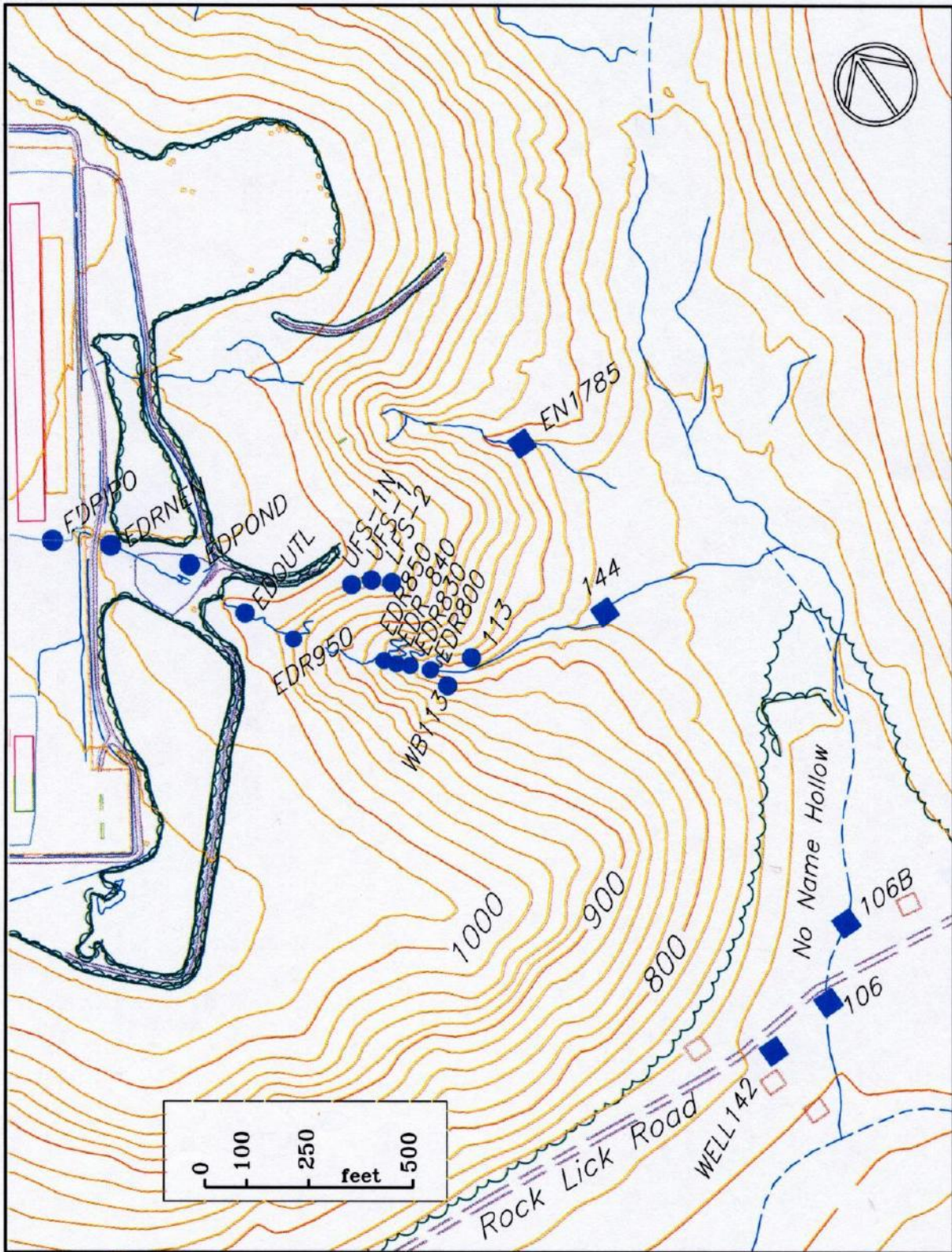


Figure 4. East Drain Hillside surface-water sampling locations.



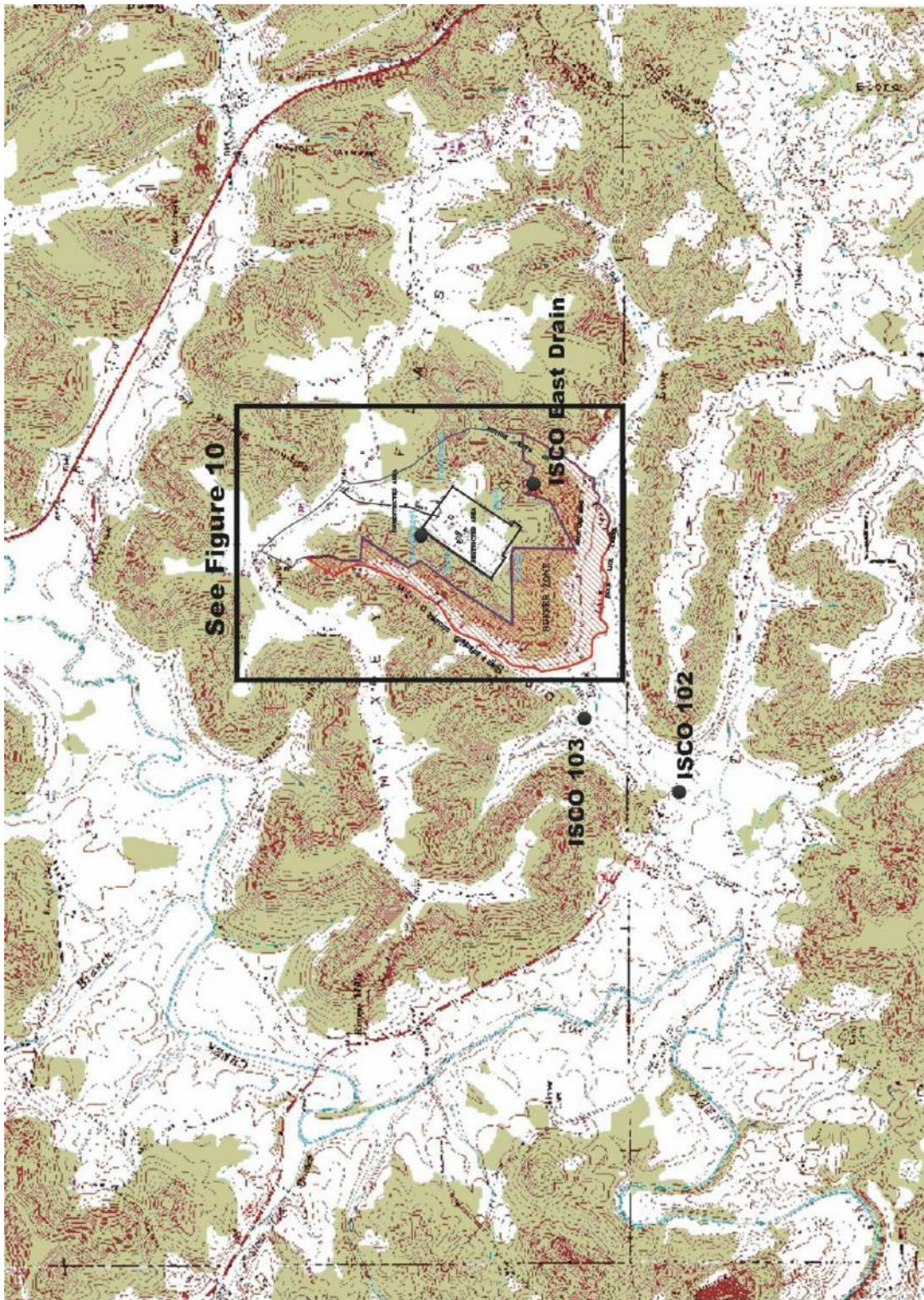


Figure 5. Automated surface water sampling locations



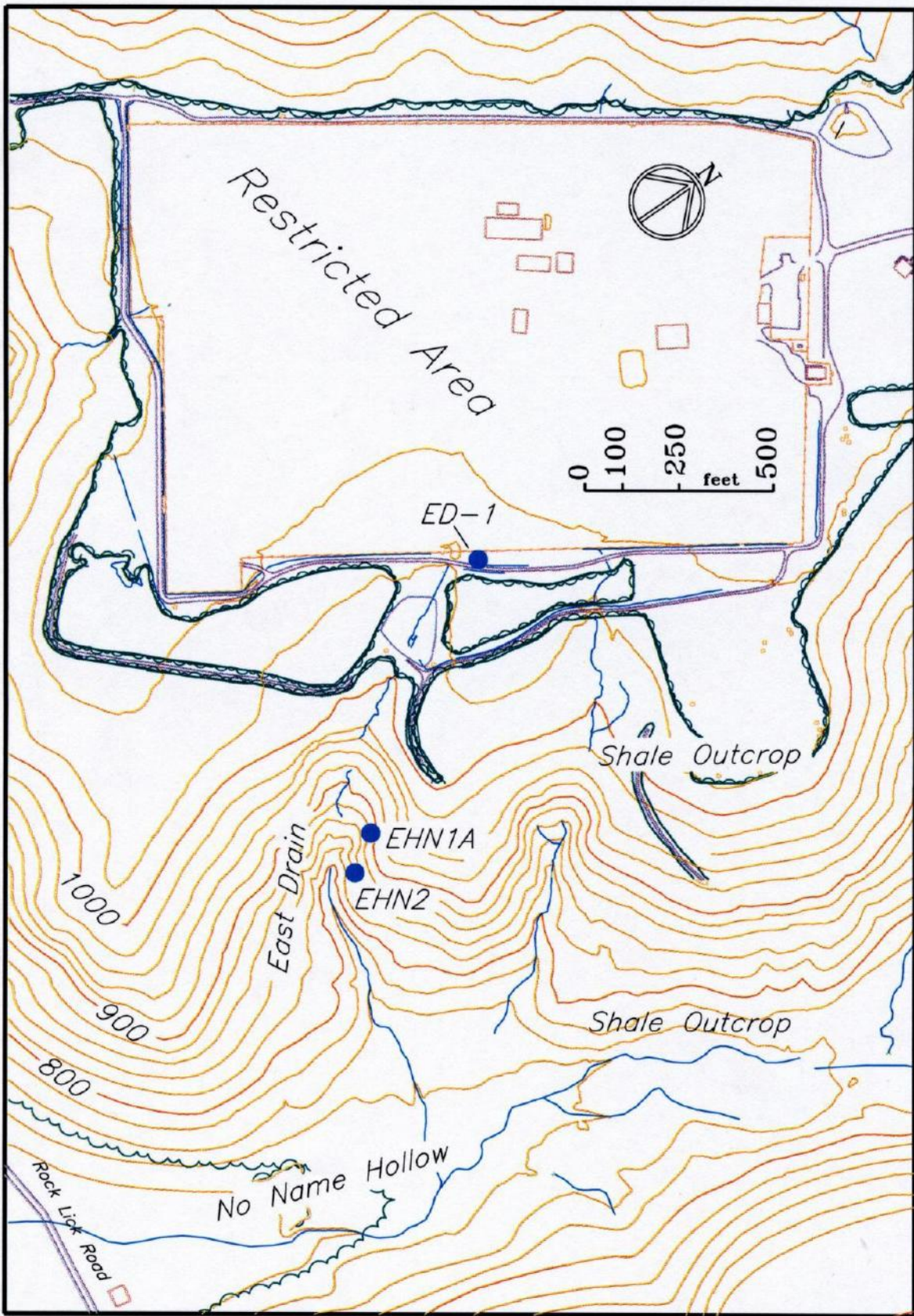


Figure 6. East Drain Hillside porous cup sampling locations.

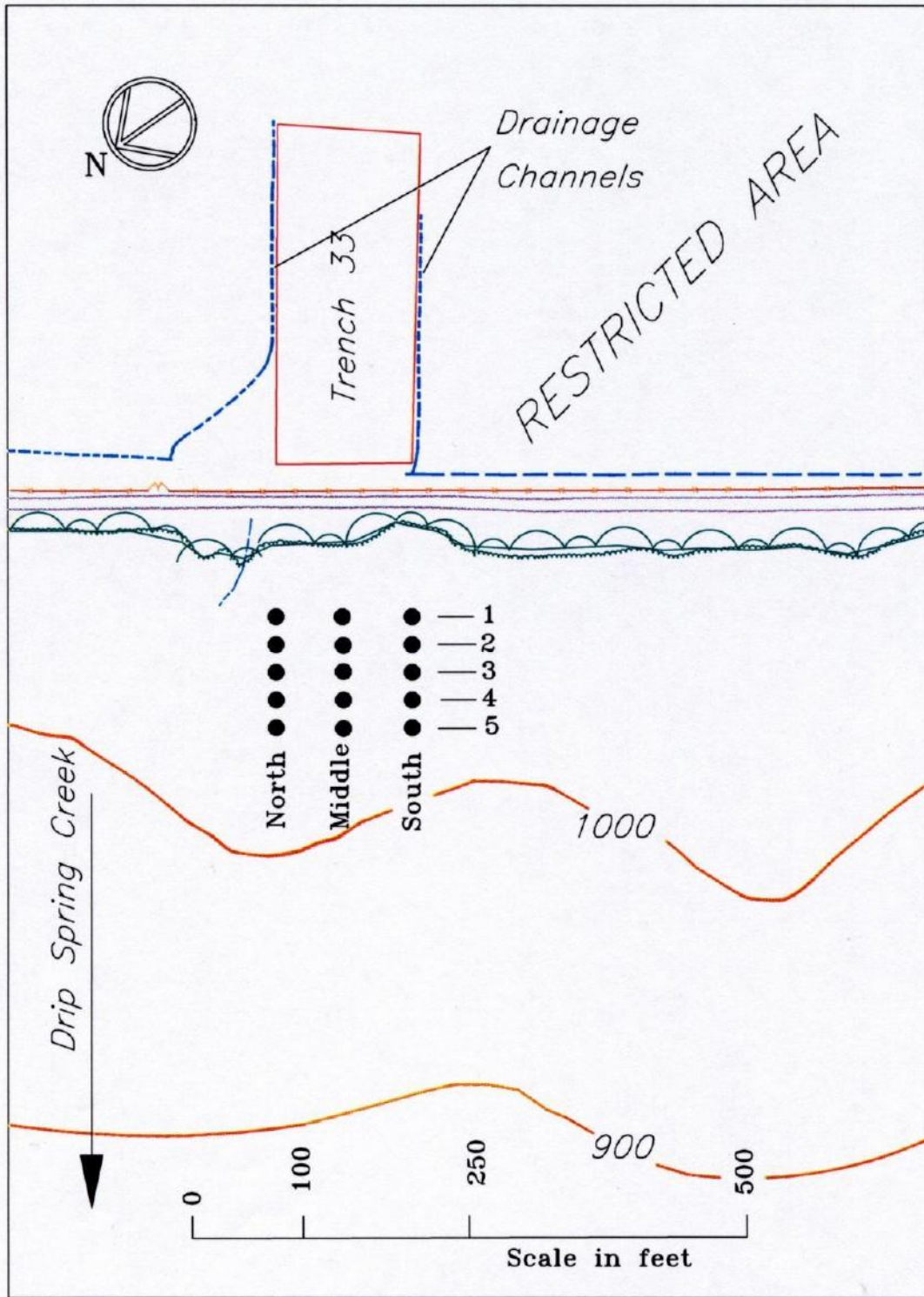


Figure 7. West Hillside porous cup sampling locations.



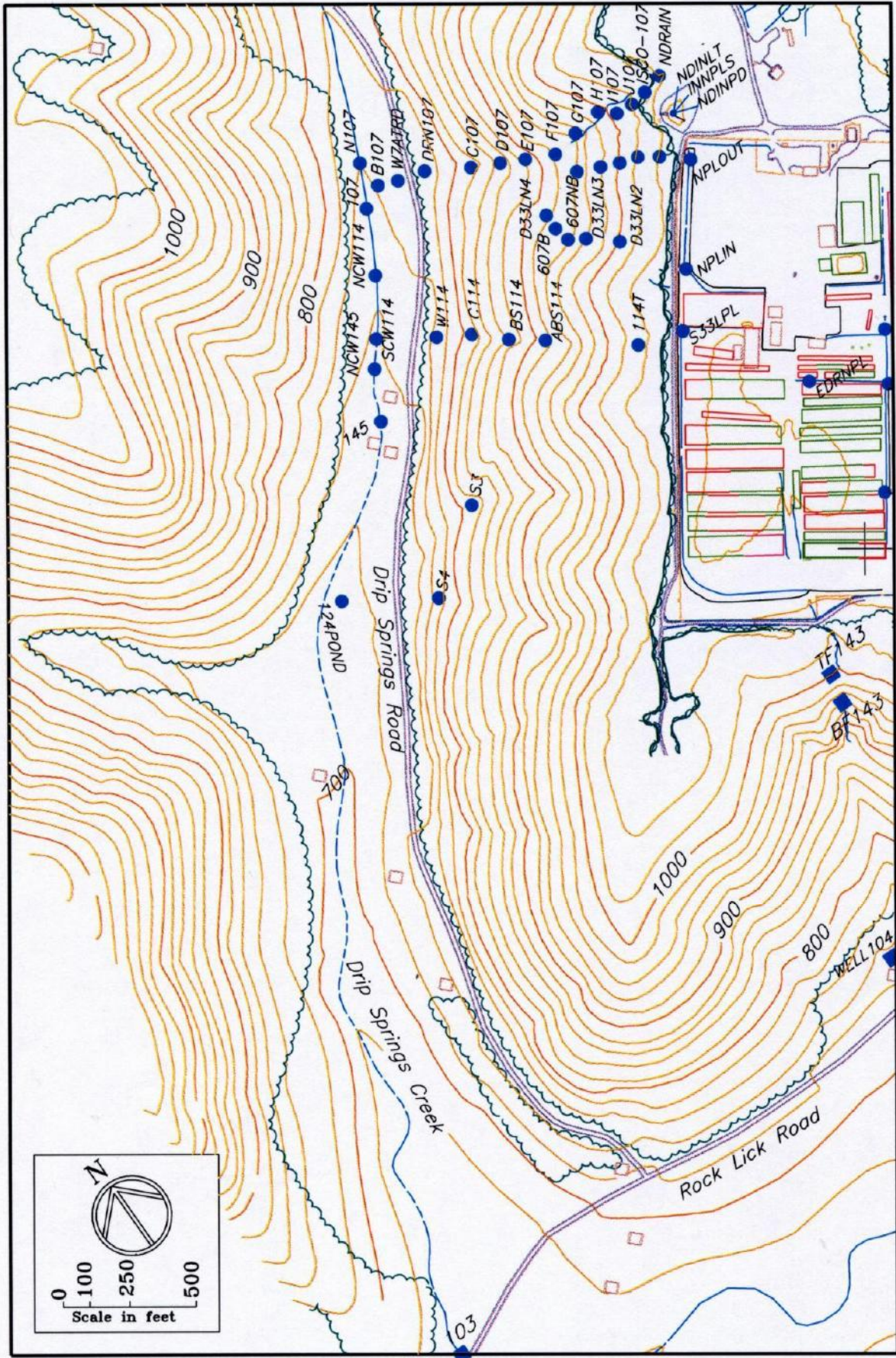


Figure 8. West Hillside surface-water sampling locations.



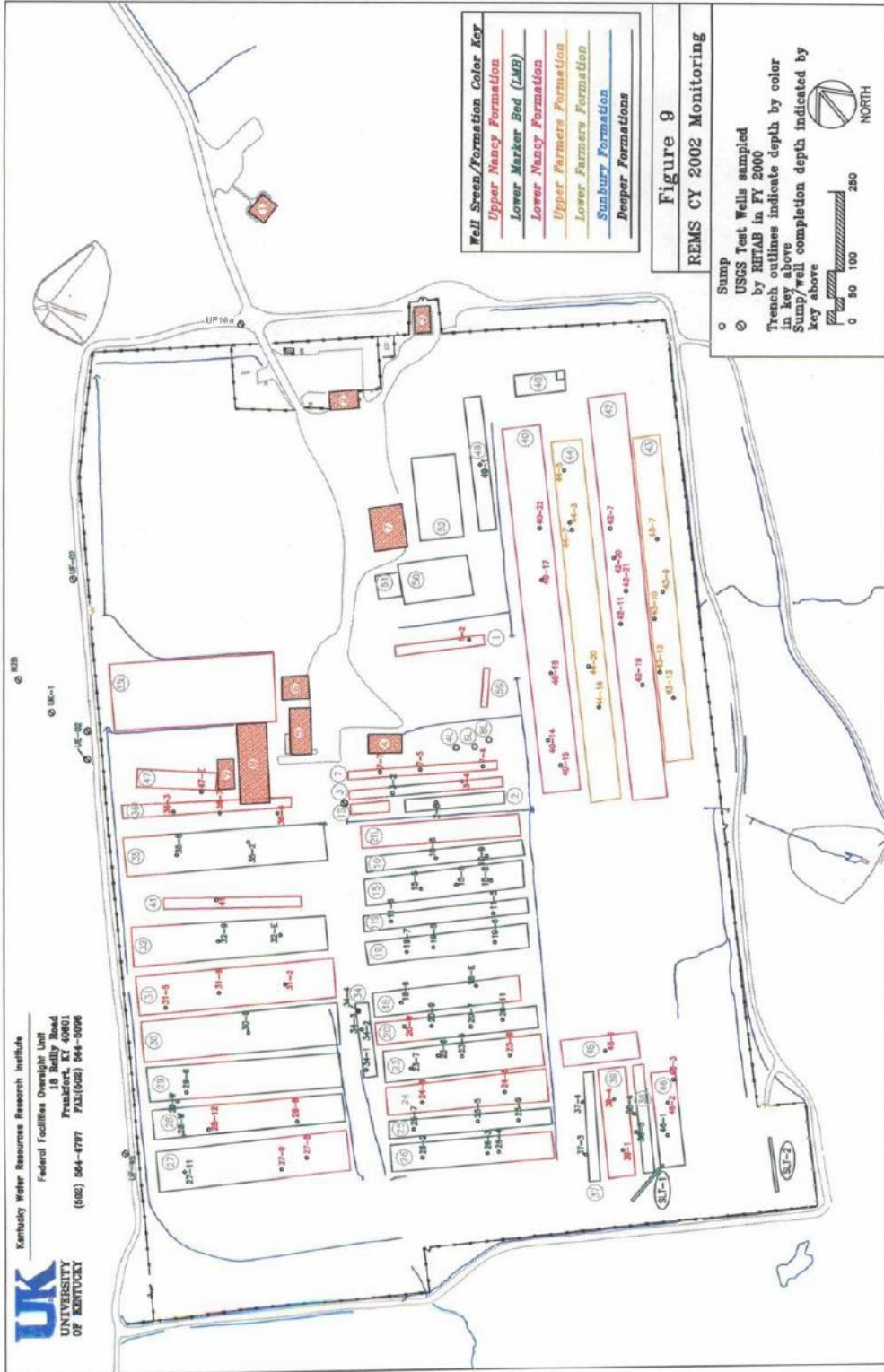


Figure 9. USGS Test Wells and Trench Sumps.

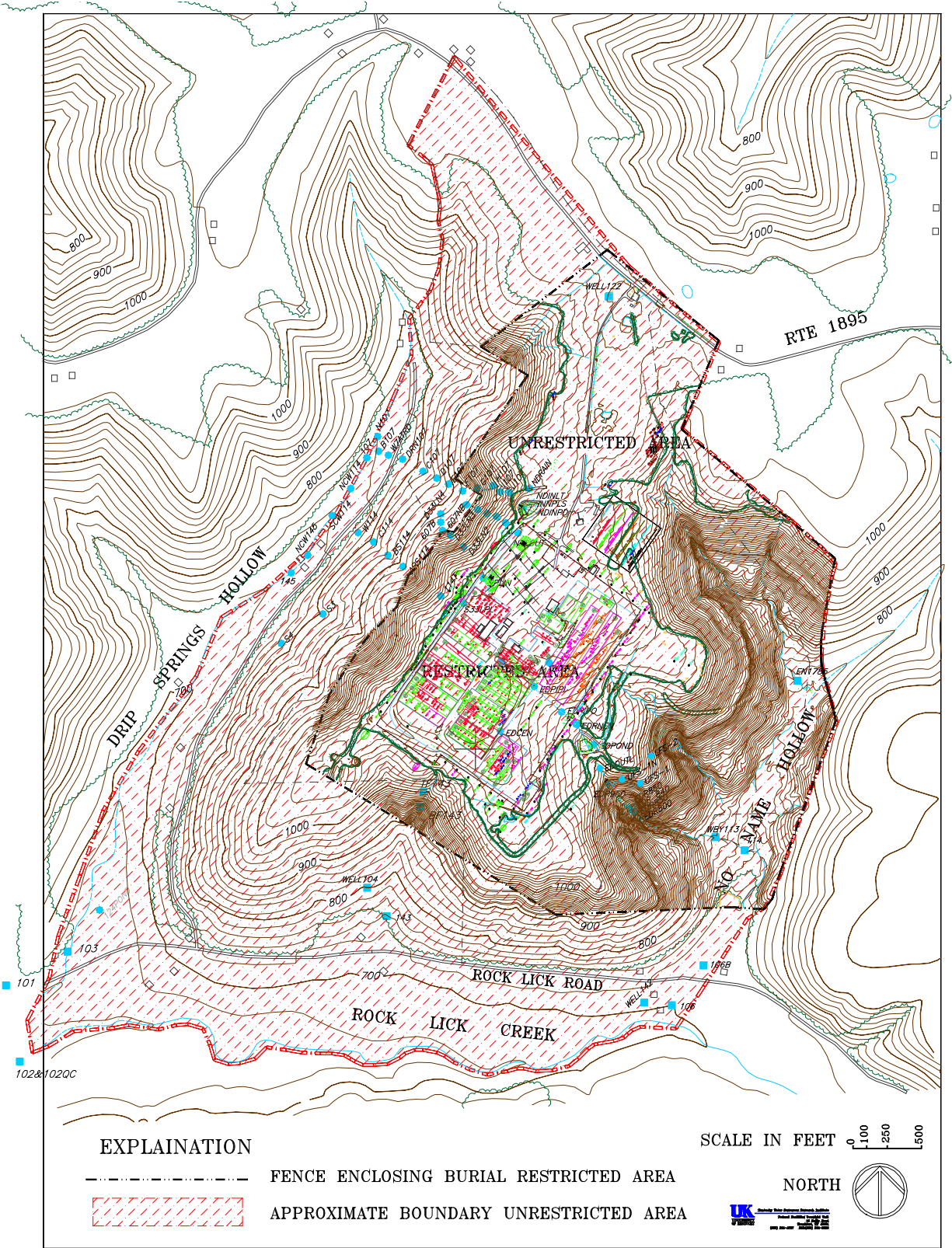


Figure 10. Maxy Flats Nuclear Disposal Site Area Map.



**Appendix 6 - Maxey Flats Data Summaries**