

**SAMPLE RECORD SHEET**  
REGIONAL LABORATORY

LAB CONTROL NUMBER

301379

ROUTINE  
 URGENT

DATE NEEDED

ASAP

SAMPLE LOCATION  
Heritage Metals

DATE ANALYSIS BEGAN  
1-24-89

DATE COMPLETED  
1-27-89

ANALYZED BY  
NTM/NTL

DATE  
1-27-89

COLLECTED BY  
L. Friedman

DIVISION  
DRSS

PHONE  
5276

CONTACT NOTIFIED  
L. Friedman

DATE  
1-27-89

APPROVED BY  
[Signature]

SAMPLE			ANALYZE FOR	INSTRUMENT USED	QUANTITY USED	DATE COUNTED	COUNT TIME	GROSS COUNT	BACK GROUND	NET COUNT	RESULT ±1σ
NO.	DATE	HOUR	DESCRIPTION								μCi/g
1	1/12	10:00	table concentrate	Pb-210	mobile lab	g	1/25	2000			(5.23 ± 0.03) E-5 (50%) (8.8 ± 1.5) E-5 (50%)
2	1/12	10:00	new feed	Pb-212	mobile lab	796.4	1/25	2000			(9.54 ± 0.13) E-6 (50%) (3.1 ± 0.9) E-5 (50%)
3	1/12	10:00	combine plant tailings	Pb-212	mobile lab	926.9	1/25	2000			(6.77 ± 0.11) E-6 (50%) (1.9 ± 0.7) E-5 (50%)
4	1/12	10:00	magzite waste	Pb-212	in house	1251.9	1/27	1000			(5.871 ± 0.012) E-4 (50%) (1.557 ± 0.014) E-4 (50%)
5	1/12	10:00	zircon product	Pb-212	mobile lab	1544.3	1/25	2000			(7.17 ± 0.12) E-6 (50%) (9.6 ± 1.4) E-5
6	1/12	10:00	TiO <sub>2</sub>	Pb-210	mobile lab	1329.1	1/25	2000			(1.092 ± 0.01) E-5 (50%) (1.14 ± 0.7) E-5 (50%)

\*Random uncertainties reported are 1 standard deviation. 1σ small negative and other results < 2σ are interpreted as including "zero" or as not detected. If appropriate estimates of possible systematic errors are reported in parentheses.

LABORATORY USE ONLY

REQUEST FOR ANALYSIS

Region I Laboratory

CONTROL NUMBER

301379

SAMPLE LOCATION (LICENSEE)

Heritage Metals - Lakehurst, N.J.

LICENSE NO.

non-licensee

DOCKET NO.

9990001

SAMPLES SUBMITTED

#(TOTAL)

TYPE

VOLUME

WEIGHT

DATE SAMPLES SUBMITTED

PRIORITY

6

Manilli beaker (solid)

500ml

1/15/89

ROUTINE

URGENT \*\*\*

SAMPLE COLLECTION INTERVAL

	MONTH	DAY	YEAR	TIME
START	1	12	89	1000
STOP	1	12	89	1300

INSPECTOR RESPONSIBLE

L. Friedman

PHONE EXT

5276

ANALYSIS TO BE PERFORMED

LIST DESIRED  
LED (Optional)

OTHER TYPE OF ANALYSIS (Specify)

LIST DESIRED  
LED (Optional)

GROSS ALPHA

Thorium

500 ppa

GROSS BETA

GAMMA SPEC

TRITIUM

CARBON-14

IODINE-125

REMARKS

After spec., consider sending samples for fluorescence analysis.

Samples may contain considerable amount of moisture (some collected out doors in rain)

NOTE: Samples will be discarded after analysis unless reasons are noted above in Remarks.

\*\*\* FOR URGENT USE ONLY - Signature blocks below must be filled out by the Inspector's appropriate Section Chief and by the Chief, Effluents Radiation Protection Section BEFORE submitting this form to the Region I Laboratory.

SIGNATURE - APPROPRIATE NUCLEAR MATERIALS SAFETY SECTION CHIEF

DATE

SIGNATURE - CHIEF, EFFLUENTS RADIATION PROTECTION SECTION

DATE

**SAMPLE RECORD SHEET**  
REGION I LABORATORY

LAB CONTROL NUMBER

301740

ROUTINE  
 URGENT

DATE NEEDED

SAMPLE LOCATION: *Heritage Minerals / Nor d Illinois*

DATE ANALYSIS BEGAN

DATE COMPLETED: *4-23-90*

ANALYZED BY: *JMK*

DATE

COLLECTED BY: *B Ulrich*

DIVISION: *DESS* PHONE: *5040*

CONTACT NOTIFIED

DATE

APPROVED BY: *JMK*

DATE: *4/23/90*

SAMPLE				ANALYZE FOR	INSTRUMENT USED	QUANTITY USED	DATE COUNTED	COUNT TIME	GROSS COUNT	BACK GROUND	NET COUNT	RESULT TO
NO.	DATE	HOUR	DESCRIPTION									
1	4/17	1200	SOIL N1	Ac-228	Yspec	1024.6 g	4/18	2000S				$(1.5 \pm 0.2) E-6$ (15%)
				Pb-212								$(1.82 \pm 0.06) E-6$ (15%)
				Bi-212								$(1.0 \pm 0.4) E-6$ (15%)
2	4/17	1200	SOIL N2	Ac-228		703.9 g	4/19	2000S				$(1.46 \pm 0.05) E-5$ (15%)
				Pb-212								$(1.74 \pm 0.02) E-5$ (15%)
				Bi-212								$(9.9 \pm 0.7) E-6$ (15%)
3	4/17	1200	SOIL H1	Ac-228		718.8 g	4/19	2000S				$(4.0 \pm 0.2) E-6$ (15%)
				Pb-212								$(3.46 \pm 0.09) E-6$ (15%)
				Bi-212								$(2.4 \pm 0.4) E-6$ (15%)
4	4/17	1200	SOIL H2	Ac-228		815.4 g	4/18	2000S				$(1.90 \pm 0.04) E-5$ (15%)
				Pb-212								$(1.92 \pm 0.02) E-5$ (15%)
				Bi-212								$(1.33 \pm 0.09) E-5$ (15%)

\* Random uncertainties reported are 1 standard deviation. For small negative and other results  $\leq 2\sigma$  are interpreted as including "zero" or as not detected. If appropriate, estimates of possible systematic errors are reported in parentheses.



**REQUEST FOR ANALYSIS**  
Region I Laboratory

CONTROL NUMBER

301440

SAMPLE LOCATION (LICENSEE)

HERITAGE MINERALS (B) NORD ILUENITE

LICENSE NO

None  
B none

DOCKET NO

040-08980  
040-08987

SAMPLES SUBMITTED

#(TOTAL)	TYPE	VOLUME	WEIGHT
6	soil-in Marinelli		
1	washer		

DATE SAMPLES SUBMITTED  
4-18-90

PRIORITY  
 ROUTINE  
 URGENT \*\*\*

SAMPLE COLLECTION INTERVAL

START	MONTH	DAY	YEAR	TIME
	4	17	90	11 <sup>30</sup> A
STOP	4	17	90	2 <sup>30</sup> P

INSPECTOR RESPONSIBLE

BETSI ULRICH

PHONE EXT

5040

ANALYSIS TO BE PERFORMED

LIST DESIRED  
LED (Optional)

OTHER TYPE OF ANALYSIS (Specify)

LIST DESIRED  
LED (Optional)

<input type="checkbox"/>	GROSS ALPHA			
<input type="checkbox"/>	GROSS BETA			
<input checked="" type="checkbox"/>	GAMMA SPEC			
<input type="checkbox"/>	TRITIUM			
<input type="checkbox"/>	CARBON-14			
<input type="checkbox"/>	IODINE-125			

REMARKS

Note: Heritage Sample #3 is monazite sand ~100 uM/h  
This is a split sample w/ license for comparative analysis with their lab.  
Also, please report the 4 Heritage samples separately from the 3 Nord samples. Thanks  
Expecting 4/18 w/ samples

NOTE: Samples will be discarded after analysis unless reasons are noted above in Remarks.

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SIGNATURE - APPROPRIATE NUCLEAR MATERIALS SAFETY SECTION CHIEF

DATE

SIGNATURE - CHIEF, EFFLUENTS RADIATION PROTECTION SECTION

DATE

MINIMUM DETECTABLE ACTIVITY REPORT (ND PC VERSION MAR 88)

PEAK WIDTH = 3.00 FWHM. CONFIDENCE LEVEL = 4.66.

NUCLIDE	BKG	ENERGY	MINIMUM uCi /UNIT
BE-7	38.	477.59	5.2988E-07
NA-22	12.	1274.50	8.0350E-08
NA-24	6.	1368.53	5.9983E-08
CL-38	5.	1642.42	1.5444E-07
AR-41	12.	1293.64	7.5270E-08
SC-46	16.	889.25	6.7962E-08
CR-51	61.	320.08	4.9194E-07
MN-52	8.	1434.06	7.2805E-08
MN-54	12.	834.83	5.4916E-08
MN-56	15.	846.75	5.9300E-08
CO-57	67.	122.06	3.0772E-08
CO-58	19.	810.76	6.7328E-08
FE-59	12.	1099.22	1.2426E-07
CO-60	11.	1332.46	8.0173E-08
ZN-65	13.	1115.52	1.4558E-07
NI-65	5.	1481.84	2.3691E-07
ZN-69M	32.	438.63	4.8440E-08
SE-75	45.	400.65	4.4265E-07
AS-76	30.	559.10	1.2724E-07
BR-82	21.	776.49	8.0270E-08
BR-84	12.	881.50	1.0288E-07
KR-85M	83.	151.18	3.9151E-08
KR-85	85.	513.99	2.0631E-05
SR-85	85.	513.99	8.9328E-08
RB-85	7.	1076.63	5.9900E-07
KR-87	47.	402.58	9.2358E-08
KR-88	56.	196.32	1.0998E-07
RB-88	19.	898.02	3.1259E-07
Y-88	4.	1836.01	6.4314E-08
RB-89	11.	1031.88	5.8301E-08
SR-91	14.	1024.30	2.1647E-07
Y-91M	33.	557.57	5.1945E-08
Y-91	19.	1204.90	3.1846E-05
Y-92	16.	934.50	4.8871E-07
Y-93	54.	266.90	5.5688E-07
NB-95	15.	765.79	5.5923E-08
ZR-95	23.	756.72	1.2364E-07
NB-97	28.	657.90	5.7900E-08
ZR-97	48.	507.63	1.2794E-06
MO-99	21.	739.58	4.8911E-07
TC-99M	87.	140.51	3.3233E-08
RU-103	26.	497.08	5.3358E-08
RH-105	68.	318.90	2.6394E-07
RH-106	23.	621.84	HALF LIFE TOO SHORT
CD-109	93.	88.04	9.7484E-07
AG-110M	28.	657.70	6.8659E-08
CD-113M	54.	255.00	3.7608E-05
SN-113	54.	255.12	1.9492E-06
SB-122	22.	563.93	6.9824E-08
SB-124	3.	1691.02	1.0516E-07

PEAK WIDTH = 3.00 FWHM. CONFIDENCE LEVEL = 4.66.

NUCLIDE	BKG	ENERGY	MINIMUM uCi /UNIT
SB-125	33.	427.90	1.5720E-07
SN-125	9.	1066.60	6.8944E-07
SB-127	17.	685.20	1.4623E-07
TE-129M	29.	695.88	2.1222E-06
I-130	17.	536.09	4.1215E-08
I-131	43.	364.48	5.5861E-08
TE-131M	19.	773.67	1.6574E-07
TE-131	30.	452.32	1.7427E-07
XE-131M	64.	163.93	1.4035E-06
I-132	18.	667.69	4.9907E-08
TE-132	57.	228.16	3.9710E-08
XE-133M	54.	233.22	3.3724E-07
XE-133	74.	81.00	8.8655E-08
I-134	11.	884.09	7.1553E-08
CS-134	28.	795.84	9.3257E-08
I-135	10.	1260.41	2.4739E-07
XE-135M	23.	526.56	3.1339E-08
XE-135	63.	249.79	4.3648E-08
CS-136	11.	1048.07	8.1174E-08
CS-137	40.	661.64	9.1593E-08
CS-138	10.	1435.86	7.9507E-08
XE-138	47.	258.31	5.7306E-08
BA-139	72.	165.85	1.5743E-07
CE-139	72.	165.85	3.7357E-08
BA-140	26.	537.32	2.0481E-07
LA-140	6.	1596.49	7.2306E-08
CE-141	72.	145.44	5.7799E-08
CE-143	45.	293.26	9.1263E-08
CE-144	73.	133.54	2.5498E-07
FR-144	29.	696.49	2.7275E-06
ND-147	91.	91.11	1.2205E-07
EU-152	9.	1112.02	4.6151E-07
SM-153	98.	103.20	1.1731E-07
TA-182	19.	1121.28	2.5650E-07
W-187	19.	685.81	1.8983E-07
HG-203	39.	279.19	4.4509E-08
BI-214	35.	609.31	1.4520E-07
FB-214	57.	351.92	1.3639E-07
RA-226	68.	186.21	9.6456E-07
U-235	73.	143.76	2.6719E-07
NP-239	43.	277.60	2.5434E-07
AM-241	68.	59.50	.0000E+00
- AC-228	23.	911.07	3.0109E-07
BI-212	23.	727.17	5.5494E-07
FR-212	65.	238.63	8.7457E-08
PA-234M	20.	1001.03	1.4240E-05