Region I FORM 304
(8/88)

U.S. NUCLEAR REGULATORY COMMISSION

SAMPLE RECORD SHEET
REGION I LABORATORY

LAB CONTROL NUMBER: 3013-79

ROUTINE / X URGENT — DATE NEEDED: ASAP

B-15

SAMPLE LOCATION: Heritage Metals

DATE ANALYSIS BEGAN: 1-24-89 — DATE COMPLETED: 1-27-89

ANALYZED BY: NT-M / MML — DATE:

COLLECTED BY: L. Friedman — DIVISION: DRSS — PHONE: 5276

CONTACT NOTIFIED: L. Friedman — DATE: 1-27-89

APPROVED BY: TOK — DATE: 1-27-89

SAMPLE NO.	DATE	HOUR	DESCRIPTION	ANALYZE FOR	INSTRUMENT USED	QUANTITY USED g	DATE COUNTED	COUNT TIME (sec)	GROSS COUNT	BACK GROUND	NET COUNT	RESULT ±1σ* µCi/g
1	1/12	10:00	table concentrate	Pb-212	mob. lab	1414.8	1/25	2000				(5.23±0.03) E-5 (50%)
				Pa-234m								(8.8±1.5) E-5 (50%)
2	1/12	10:00	new feed	Pb-212	mobile lab	786.4	1/25	2000				(9.54±0.13) E-6 (50%)
				Pa-234m								(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%)
				Pa-234m								(1.9±0.7) E-5 (50%)
4	1/12	6:00	monazite waste	Pb-212	In-house Y-spec	1251.9	1/27	1000				(5.871±0.012) E-4 (50%)
				Pa-234m								(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%)
				Pa-234m								(9.6±1.4) E-5
6	1/12	10:00	T-105	Pb-212	mobile lab	1324.1	1/25	2000				(1.042±0.011) E-5 (50%)
				Pa-234								(1.4±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.

(pink) 2. INSPECTOR

Region I FORM 303
(8-88)

U.S. NUCLEAR REGULATORY COMMISSION

REQUEST FOR ANALYSIS
Region I Laboratory

LABORATORY USE ONLY

CONTROL NUMBER: 301379

SAMPLE LOCATION (LICENSEE)	LICENSE NO.	DOCKET NO.
Heritage Metals - Lakehurst, N.J.	non-licensee	999.0001

SAMPLES SUBMITTED

#(TOTAL)	TYPE	VOLUME	WEIGHT
6	Marinelli beaker (solid)	500 ml	

DATE SAMPLES SUBMITTED	PRIORITY
1/13/89	✓ ROUTINE
	URGENT ***

SAMPLE COLLECTION INTERVAL

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

INSPECTOR RESPONSIBLE: J. Friedman

PHONE EXT: 5276

ANALYSIS TO BE PERFORMED	LIST DESIRED LLD (Optional)	OTHER TYPE OF ANALYSIS (Specify)	LIST DESIRED LLD (Optional)
GROSS ALPHA		✓ Thorium	500 ppm
GROSS BETA			
GAMMA SPEC			
TRITIUM			
CARBON-14			
IODINE-125			

REMARKS

After γ spec., consider sending samples for fluorescence analyses.

Samples may contain considerable amount of moisture (some collected outdoors 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

(pink) 2 - INSPECTOR

Region I FORM 304
(8/88)

U.S. NUCLEAR REGULATORY COMMISSION

SAMPLE RECORD SHEET
REGION I LABORATORY

LAB CONTROL NUMBER: 301440

X ROUTINE / URGENT — DATE NEEDED

SAMPLE LOCATION: Heritage Minerals / Nord Ilmenite

DATE ANALYSIS BEGAN:

DATE COMPLETED: 4-23-90

ANALYZED BY: TOK — DATE:

COLLECTED BY: B. Ullrich — DIVISION: DRSS — PHONE: 5040

CONTACT NOTIFIED: — DATE:

APPROVED BY: TOK — DATE: 4/23/90

SAMPLE NO.	DATE	HOUR	DESCRIPTION	ANALYZE FOR	INSTRUMENT USED	QUANTITY USED	DATE COUNTED	COUNT TIME	GROSS COUNT	BACK GROUND	NET COUNT		RESULT ±1σ μC/g
1	4/17	1200	SOIL N1	Ac-228	γ spec	1024.6 g	4/18	2000S					(1.8±0.2) E-6 (15%)
				Pb-212									(1.82±0.06) E-6 (15%)
				Bi-212									(1.0±0.4) E-6 (15%)
2	4/17	1200	SOIL N2	Ac-228		703.9 g	4/19	2000S					(1.46±0.05) E-5 (15%)
				Pb-212									(1.44±0.02) E-5 (15%)
				Bi-212									(9.4±0.7) E-6 (15%)
3	4/17	1200	SOIL H1	Ac-228		778.8 g	4/19	2000S					(4.0±0.2) E-6 (15%)
				Pb-212									(3.46±0.09) E-6 (15%)
				Bi-212									(2.4±0.4) E-6 (15%)
4	4/17	1200	SOIL H2	Ac-228		815.4 g	4/18	2000S					(1.90±0.04) E-5 (15%)
				Pb-212									(1.92±0.02) E-5 (15%)
				Bi-212									(1.33±0.09) E-5 (15%)

*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.

(pink) 2. INSPECTOR

Region 1 FORM 304
(8/88)

U.S. NUCLEAR REGULATORY COMMISSION

SAMPLE RECORD SHEET
REGION 1 LABORATORY

LAB CONTROL NUMBER: 30140

☒ ROUTINE ☐ URGENT — DATE NEEDED:

SAMPLE LOCATION:

DATE ANALYSIS BEGAN: DATE COMPLETED: 4-23-90

ANALYZED BY: JOK DATE:

COLLECTED BY: DIVISION: PHONE:

CONTACT NOTIFIED: DATE:

APPROVED BY: JOK DATE: 4/23/90

SAMPLE NO.	DATE	HOUR	DESCRIPTION	ANALYZE FOR	INSTRUMENT USED	QUANTITY USED	DATE COUNTED	COUNT TIME	GROSS COUNT	BACKGROUND	NET COUNT		RESULT ±1σ *
													pCi/g
5	4/17	1200	Soil H3	Ac-228	γ spec	1353.0 g	4/19	300 s					(2.04±0.02) E-3 (15%)
				Pb-212									(1.721±0.009) E-3 (15%)
				Bi-212									(1.38±0.04) E-3 (15%)
6	4/17	1200	Soil H4	Ac-228		413.4 g	4/20	2000 s					(9.2±0.4) E-6 (15%)
				Pb-212									(9.1±0.2) E-6 (15%)
				Bi-212									(7.4±0.8) E-6 (15%)

*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.

(pink) 2. INSPECTOR

Region I FORM 303
(8-88)

U.S. NUCLEAR REGULATORY COMMISSION

REQUEST FOR ANALYSIS
Region I Laboratory

LABORATORY USE ONLY

CONTROL NUMBER: 301440

SAMPLE LOCATION (LICENSEE): (A) HERITAGE MINERALS (B) NORD ILMENITE

LICENSE NO.	DOCKET NO.
(A) none	040-08980
(B) none	040-08987

SAMPLES SUBMITTED

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

DATE SAMPLES SUBMITTED: 4-18-90

PRIORITY: X ROUTINE / URGENT ***

SAMPLE COLLECTION INTERVAL

	MONTH	DAY	YEAR	TIME
START	4	17	90	11:30 A
STOP	4	17	90	2:30 P

INSPECTOR RESPONSIBLE: BETSY ULLRICH

PHONE EXT.: 5040

	ANALYSIS TO BE PERFORMED	LIST DESIRED LLD (Optional)		OTHER TYPE OF ANALYSIS (Specify)	LIST DESIRED LLD (Optional)
	GROSS ALPHA				
	GROSS BETA				
X	GAMMA SPEC				
	TRITIUM				
	CARBON-14				
	IODINE-125				

REMARKS: Note: Heritage Sample #3 is monazite sand ~100 uR/h
This is a split sample w/ licensee for comparative analysis with their lab.

Also, please report the 4 Heritage samples separately from the 3 Nord samples. Thanks.

Expecting U/Th in samples.

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

(pink) 2. INSPECTOR

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
PR-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
PB-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
PB-212	65.	238.63	8.7457E-08
PA-234M	20.	1001.03	1.4240E-05