

## Maki Iatridis

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**From:** Linn Havelick [Linn.Havelick@is.mines.edu]  
**Sent:** Tuesday, February 08, 2005 4:26 PM  
**To:** elizabeth.stengl@awin.com  
**Cc:** Maki Iatridis; Joseph Gordon  
**Subject:** CSMRI Bagged Soils Analytical Results

Ms. Stengl:

Attached is a summary of the preliminary analytical results obtained from the CSMRI bagged soils. The material averaged 10.5 picocuries per gram radium-226. The concentrations listed are uncorrected for background, so the actual contaminant levels are lower.

The link below is for a Nuclear Regulatory Commission guidance document that allows for mixing of wastes to meet landfill waste acceptance criteria. The Colorado Department of Public Health and Environment has agreed to allow use of the NRC guidance on mixing of the CSMRI soils. This will allow us to consider the overall collection of bagged material to be uniformly at the average concentration.

<http://www.nrc.gov/reading-rm/doc-collections/commission/secys/2004/secy2004-0035/2004-0035scy.html>

Thank you for your assistance with this.

Linn

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CSMRI Bagged Material Analysis Results (PRELIMINARY PARAGON RESULTS)

2-Feb-05

Activities in pCi/g

<u>Sample Number</u>	<u>U-234</u>	<u>U-235</u>	<u>U-238</u>	<u>Th-228</u>	<u>Th-230</u>	<u>Th-232</u>	<u>Ra-226</u>	<u>Ra-228</u>
20041221001	4.52	0.26	4.26	2.33	6.5	2.14	7.4	2.49
20041221002	35.6	1.77	35.5	3.9	35.1	3.88	43.9	4.1
20041221003	4.52	0.208	4.46	1.42	4.69	1.47	7.35	1.34
<b>*20041221004</b>	2.93	0.21	2.97	1.42	2.52	1.16	6.18	1.56
20041221005	12.2	0.71	13.3	2	10.1	2.09	5.27	0.81
20041221006	11	0.75	11	1.24	11.9	1.09	14.9	1.09
20041221007	4.13	0.25	4.17	1.37	4.49	1.34	8.1	1.53
20041221008	7.7	0.47	7.8	1.3	6.7	1.21	11	1.3
20041221009	10.6	0.8	11.4	1.23	9.9	1.13	13.4	1.52
20041221010	6	0.27	6.1	1.05	8.5	0.94	17.8	1.31
20041221011	8	0.49	9	1.26	5.6	1.32	8.7	1.31
20041221012	14.5	0.82	14.5	1.12	24.4	0.97	20.3	0.88
20041221013	14	0.85	14	2.06	12.8	1.92	11.5	1.99
20041221014	44.2	2.71	45.8	1.32	27.5	1.26	9.9	1.33
20041221015	7.5	0.49	7.4	1.53	17.6	1.33	17.9	1.6
20041221016	7.6	0.42	7.2	2.04	6.8	2.21	16.6	2.71
20041221017	5.04	0.23	4.77	1.92	5.5	1.86	10	1.97
20041221018	2.05	0.095	1.97	2.25	2.14	2.04	4.64	2.89
20041221019	4.08	0.165	3.94	1.9	5.52	1.89	11.5	1.71
20041221020	5.82	0.255	6.1	1.6	6.7	1.64	9.4	1.59
20041221021	4.84	0.232	4.84	1.86	5.58	1.58	10.2	1.78
<b>*20041221022</b>	5.97	0.36	6.3	1.6	8.5	1.58	10.9	1.94
20041221023	5.36	0.283	5.62	1.44	5.5	1.69	12	1.64
20041221024	6.7	0.305	6.6	1.6	7	1.41	10.1	1.64
20041221025	3.17	0.172	3.27	1.29	2.22	1.33	3.32	0.97
20041221026	1.83	0.158	2.01	1.31	2.25	1.19	5.4	1.5
20041221027	8.8	0.4	9.6	1.01	18.6	1.13	16.4	1.6
20041221028	1.84	0.067	1.77	2.21	1.55	2.05	3	2.16
20041221029	2	0.132	2.01	2.1	2.75	2.03	6.72	2.08
20041221030	2.14	0.131	2.19	1.26	2.47	1.58	7.6	1.42
20041221031	4.65	0.224	4.68	1.92	17.2	1.81	39	2.33
20041221032	1.74	0.119	1.81	1.93	2.55	2	14.7	1.22
Count =	30	30	30	30	30	30	30	30
Max =	44.20	2.71	45.80	3.90	35.10	3.88	43.9	4.1
Min =	1.74	0.07	1.77	1.01	1.55	0.94	3	0.81
Geomean =	5.87	0.32	5.95	1.62	6.75	1.57	10.46	1.62

\* Duplicate of previous sample, values not used in calculation of Count, Maximum, Minimum, or Geometric Mean