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General Comment

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Attachments

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January 24, 2011

Ms. Cindy Bladey, Chief
Rules, Announcements and Directives Branch
Office of Administration
Mail Stop 5B01M
U.S. Nuclear Regulatory Commission
Washington DC 20555-0001

Dear Ms. Bladey:

Subject: Wyoming Mining Association (WMA) Comments on the *Proposed Updates to Nuclear Regulatory Commission's (NRC's) Radiation Protection Regulations and Guidance In Light of Recommendations Presented In the International Commission on Radiological Protection (ICRP) Publication 103 (2007)* - Federal Register September 27, 2010.

The Wyoming Mining Association (WMA) is an industry association representing mining companies, contractors, vendors, suppliers and consultants in the State of Wyoming. Among its mining industry members are uranium recovery licensees, including in-situ and conventional uranium recovery operators, several companies planning new uranium recovery operations and several companies conducting final reclamation/restoration operations. WMA has reviewed the ***Proposed Updates to Nuclear Regulatory Commission's (NRC's) Radiation Protection Regulations and Guidance In Light of Recommendations Presented in the International Commission on Radiological Protection (ICRP) Publication 103 (2007)*** (Federal Register September 27, 2010) and has the following comments:

Issue No. 1: Effective Dose and Numerical Values

WMA believes that it is simplest and best to continue using Total Effective Dose Equivalent (TEDE) as opposed to adopting the ICRP 103 term Total Effective Dose (TED). In addition, WMA believes that no commitment should be made to revising values for Annual Limits of Intake (ALI) and Derived Air concentrations (DAC) since the complete set of new dose coefficients for occupational and public exposure is not expected before 2014. No commitments should be made to values that are as yet unknown and have not been fully evaluated by the NRC and affected stakeholders.

Issue No. 2: Numerical Values and Weighting Factors

The notice states:

> *The weighting factors currently used in 10 CFR Part 20 date from 1977, and the corresponding ALI and DAC values are presented in 10 CFR Part 20 Appendix B. The NRC staff also notes that the EPA is currently examining the values presented in Federal Guidance Reports 11 and 13, and is considering an update of these values. The difference between the ICRP values and the EPA values stems primarily from the use of a U.S. population cancer incidence and mortality analysis, instead of an average set of cancer incidence and mortality values for a worldwide population.*

Four (4) recent epidemiological studies related to the uranium recovery industry in the United States are available which are as follows:
Mortality among a cohort of uranium mill workers: an Update L E Pinkerton, T F Bloom, M J Hein, E M Ward; Occupational Environmental Medicine 2004

Cancer mortality in a Texas county with prior uranium mining and milling activities, 1950–2001 John D Boice Jr, Michael Mumma, Sarah Schweitzer and William J Blot Journal of Radiation Protection 2003

Cancer and Noncancer Mortality in Populations Living Near Uranium and Vanadium Mining and Milling Operations in Montrose County, Colorado, 1950-2000 John D. Boice, Jr., Michael T. Mumma, and William J. Blot Radiation Research 2007

A cohort study of uranium millers and miners of Grants, New Mexico, 1979–2005 John D Boice Jr, Sarah S Cohen, Michael T Mumma, Bandana Chadda and William J Blot – Journal of Radiation Protection 2008

These studies pertain directly to uranium processing in the United States and show low levels of associated cancer incidence and mortality. WMA believes that specific United States data is the best to use for workers and the general public in the United States, especially for the uranium recovery industry. WMA encourages the Commission to consider these specific studies should changes to the numerical values and weighting factors be contemplated in the future.

Issue No. 3: Occupational Dose Limits

WMA believes that the current 5 rem (50 mSv) occupational dose limit should remain unchanged. While 10 CFR Part 20.1201 sets a 5 rem (50 mSv) dose limit, 10 CFR Part 20.1101(b) states:

(b) The licensee shall use, to the extent practical, procedures and engineering controls based upon sound radiation protection principles to achieve occupational doses and doses to members of the public that are as low as is reasonably achievable (ALARA).

Therefore, licensees in the United States are not limited by just the 5 rem (50 mSv) dose limit but are also required by current regulation (10 CFR Part 20.1101(b) to maintain doses as low as is reasonably achievable (ALARA). Radiation protection programs in the United States that only assure that doses are below 5 rem (50 mSv) do not meet existing regulatory requirements. The application of the ALARA principal required by current regulation assures that occupational doses in the United States remain low.

The fact that a dose limit of 5 rem (50 mSv) coupled with the mandated application of the ALARA principal maintains doses at very low levels is clearly shown in ***NUREG-0713 - Occupational Radiation Exposure at Commercial Nuclear Power Reactors and Other Facilities 2008 Forty-First Annual Report.*** This comprehensive document examines occupational doses for calendar year 2008. It provides the following data:

TABLE 3.1
Average Annual Exposure Data for Certain Categories of NRC Licensees
1998–2008

NRC License Category* and Program Code	Calendar Year	Number of Licensees Reporting	Number of Monitored Individuals	Number of Workers with Measurable TEDE	Collective TEDE (person-rem)	Average TEDE (rem)	Average Measurable TEDE per Worker (rem)
Industrial Radiography 03310 03320	1998	141	4,040	3,439	1,858.775	0.38	0.54
	1999	131	3,557	2,689	1,548.110	0.44	0.58
	2000	128	3,157	2,454	1,525.143	0.48	0.62
	2001	123	3,560	3,040	2,106.213	0.59	0.69
	2002	100	3,420	2,842	1,729.222	0.51	0.61
	2003	118	3,115	2,651	1,584.249	0.51	0.60
	2004	113	3,568	3,014	1,603.581	0.45	0.53
	2005	90	3,009	2,623	1,504.575	0.50	0.57
	2006	78	2,388	1,981	1,109.347	0.46	0.56
	2007	74	2,907	2,224	1,315.171	0.50	0.59
	2008	61	2,967	2,587	1,460.757	0.49	0.56
Manufacturing and Distribution 02500 03211 03212 03214	1998	28	1,922	644	401.356	0.21	0.62
	1999	40	2,205	836	418.993	0.19	0.50
	2000	39	2,460	1,187	418.402	0.17	0.35
	2001	35	1,705	1,184	344.743	0.20	0.29
	2002	29	1,437	1,052	328.092	0.23	0.31
	2003	33	2,372	1,798	436.660	0.18	0.24
	2004	26	2,539	1,767	347.256	0.14	0.19
	2005	23	2,566	1,557	388.647	0.15	0.25
	2006	23	1,391	903	284.566	0.20	0.32
	2007	23	2,106	1,463	291.326	0.14	0.20
	2008	18	1,934	1,341	222.123	0.11	0.17
Independent Spent Fuel Storage 23100 23200	1998	1	53	21	2.661	0.05	0.12
	1999	2	88	33	5.172	0.06	0.16
	2000	2	146	83	5.871	0.04	0.07
	2001	2	154	107	13.098	0.08	0.12
	2002	2	75	67	6.013	0.08	0.09
	2003	2	55	46	2.791	0.05	0.06
	2004	1	37	27	1.257	0.03	0.05
	2005	2	59	30	0.769	0.01	0.03
	2006	2	59	26	2.108	0.04	0.08
	2007	2	57	26	1.897	0.03	0.07
	2008	2	53	21	1.248	0.02	0.05
Fuel Cycle Licenses – Fabrication Processing and Uranium Enrich. 21200 21250	1998	10	10,684	3,613	949.865	0.09	0.26
	1999	10	9,773	3,935	1,020.333	0.10	0.26
	2000	9	9,336	4,649	1,339.366	0.14	0.29
	2001	9	8,145	3,980	1,162.262	0.14	0.29
	2002	8	7,937	3,886	660.899	0.08	0.17
	2003	8	7,738	3,633	556.297	0.07	0.15
	2004	8	7,562	3,813	513.929	0.07	0.13
	2006	9	7,695	3,370	486.602	0.06	0.15
	2006	9	7,417	3,415	521.525	0.07	0.15
	2007	9	7,536	3,225	428.717	0.06	0.13
	2008	9	7,184	2,770	420.898	0.06	0.15
Commercial Light Water Reactors (LWRs)** 41111	1998	104	114,367	57,466	13,187.392	0.12	0.23
	1999	104	113,916	59,031	13,565.711	0.12	0.23
	2000	104	110,557	57,233	12,651.882	0.11	0.22
	2001	104	104,928	52,202	11,108.562	0.11	0.21
	2002	104	107,900	54,460	12,126.160	0.11	0.22
	2003	104	109,990	56,967	11,955.570	0.11	0.21
	2004	104	110,290	52,873	10,367.897	0.09	0.20
	2005	104	114,344	57,568	11,456.807	0.10	0.20
	2006	104	116,354	58,788	11,021.186	0.09	0.19
	2007	104	114,583	57,267	10,120.013	0.09	0.18
	2008	104	118,892	57,350	9,195.940	0.08	0.16
Grand Totals and Averages	1998	284	131,966	66,183	16,399.949	0.12	0.25
	1999	287	129,537	66,524	16,658.319	0.13	0.25
	2000	282	126,656	66,606	15,937.166	0.13	0.24
	2001	273	119,492	60,803	14,734.868	0.12	0.24
	2002	243	120,769	62,307	14,860.416	0.12	0.24
	2003	265	123,270	64,093	14,535.567	0.12	0.23
	2004	254	123,996	61,514	12,933.932	0.10	0.21
	2005	228	127,673	65,146	13,846.200	0.11	0.21
	2006	216	127,809	65,113	12,938.722	0.10	0.20
	2007	212	126,889	64,205	12,158.924	0.10	0.19
	2008	194	130,830	64,075	11,300.966	0.09	0.18

* These categories consist only of NRC licensees. Agreement State licensed organizations are not required to report occupational exposure data to NRC.

** This category includes all LWRs in commercial operation for a full year for each of the years indicated. Reactor data have been corrected to account for the multiple counting of transient reactor workers (see Section 5).

The above table (Table 3.1 on page 3.3 of NUREG-0713) shows that average measureable Total Effective Dose Equivalent (TEDE) to workers is in all cases (from 1998 to 2008) less than 0.7 rem and is lower in 2008 than in 1998 for all license categories and program codes with the exception of industrial radiography. Clearly the 5 rem (50 mSv) dose limit coupled with the regulatory requirement in 10 CFR Part 20.1101(b) to maintain doses ALARA is working since average doses in the United States are considerably below the ICRP 103 recommended occupational dose limit of 10 rem (100 mSv) over 5 years, with a maximum of 5 rem (50 mSv) in any one year (effectively 2 rem (20 mSv per year). Given this fact, the United States does not need to adopt the dose limits in ICRP 103. In addition, the ICRP-103 dose limit of 10 rem (100 mSv) over 5 years, with a maximum of 5 rem (50 mSv) in any one year (effectively 2 rem (20 mSv per year) should not be adopted as a constraint limit either.

Issue No. 4: Incorporation of Dose Constraints

WMA believes that the incorporation of constraint limits based on the ICRP-103 dose limits into existing regulations will only serve to introduce unnecessary complexity and confusion into the existing regulatory scheme and should not be adopted.

The Wyoming Mining Association (WMA) appreciates the opportunity to comment on these proposed updates. If you have any questions please do not hesitate to contact me.

Sincerely yours,

Marion Loomis

Marion Loomis
Executive Director

Cc: Katie Sweeney – National Mining Association (NMA)