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APPENDIX A: NFPA 704

NFPA 704 - Fire Diamond	
Blue - Health	
4	Very short exposure could cause death or major residual injury.
3	Short exposure could cause serious temporary or moderate residual injury.
2	Intense or continued but not chronic exposure could cause temporary incapacitation or possible residual injury.
1	Exposure would cause irritation with only minor residual injury.
0	Poses no health hazard - no precautions necessary.
Red - Flammability	
4	Will rapidly or completely vaporize at normal atmospheric pressure and temperature, or is readily dispersed in air and will burn readily. Flash point below 23°C.
3	Liquids and solids that can be ignited under almost all ambient temperature conditions. Flash point below 38°C but above 23°C.
2	Must be moderately heated or exposed to relatively high ambient temperature before ignition can occur. Flash point between 38°C and 93°C.
1	Must be pre-heated before ignition can occur. Flash point over 93°C.
0	Will not burn.
Yellow - Instability or reactivity	
4	Readily capable of detonation or explosive decomposition at normal temperatures and pressures.
3	Capable of detonation or explosive decomposition but requires a strong initiating source, must be heated under confinement before initiation, reacts explosively with water, or will detonate if severely shocked.
2	Undergoes violent chemical change at elevated temperatures and pressures, reacts violently with water, or may form explosive mixtures with water.
1	Normally stable, but can become unstable at elevated temperatures and pressures.
0	Normally stable, even under fire exposure conditions, and is not reactive with water.
White - Special	
W	Reacts with water in an unusual or dangerous manner.
OX/OXY	Oxidizer
COR	Corrosive. Strong acid or base (ALK or ACID).
BIO	Biological hazard
PIO	Poisonous material
CRY/CRYO	Cryogenic material
	Radioactive material

**APPENDIX B: NATIONAL RADIOACTIVE WASTE
MANAGEMENT AND CLASSIFICATION SCHEME**

Waste Class	Waste Description	Waste type / Origin	Waste Criteria	Generic waste treatment / conditioning requirements (1)	Disposal / Management Options
1 HLW	Heat generating radioactive waste with high long and short-lived radionuclide concentrations.	<ol style="list-style-type: none"> 1 Used fuel declared as waste or used fuel recycling products 2 Sealed sources 	<ol style="list-style-type: none"> 1 Thermal power $> 2 \text{ kW/m}^2$. OR 2 Long-lived alpha, beta and gamma emitting radionuclides at activity concentration levels $>$ levels specified for LILW-LL 3 OR Long-lived alpha, beta and gamma emitting radionuclides at activity concentration levels that could result in inherent intrusion dose (the intrusion dose assuming the radioactive waste is spread on the surface) above 100 mSv per annum 	Waste package suitable for handling, transport and storage (storage period in the order of 100 years). The waste form shall be solid with additional characteristics as prescribed for a specific repository.	<ol style="list-style-type: none"> 1 <ol style="list-style-type: none"> (a) Regulated deep disposal (100's of metres). (b) Reprocessing, Conditioning and Recycling (c) Long Term Above Ground Storage
2 LILW-LL	Radioactive waste with low or intermediate short-lived radionuclide and intermediate long-lived radionuclide concentrations.	<ol style="list-style-type: none"> 1 Irradiated uranium (isotope production). 2 Un-irradiated uranium (nuclear fuel production). 3 Fission and activation products (nuclear power generation and isotope production) 4 Sealed sources. 	<ol style="list-style-type: none"> 1 Thermal power (mainly due to short-lived radio nuclides ($T_{1/2} < 31 \text{ y}$) $< 2 \text{ kW/m}^2$) AND 2 Long-lived radio nuclides ($T_{1/2} > 31 \text{ y}$) concentrations. <ul style="list-style-type: none"> ✧ Alpha: $< 4000 \text{ Bq/g}$ ✧ Beta and gamma: $< 40000 \text{ Bq/g}$ (Maximum per waste package up to 10x the concentration levels specified above). OR 3 Long-lived alpha, beta and gamma emitting radionuclides at activity concentration levels that could result in inherent intrusion dose (the intrusion dose assuming the radioactive waste is spread on the surface) between 10 and 100 mSv per annum 	Waste package suitable for handling, transport and storage (storage period in the order of 50 years). The waste form shall be solid with additional characteristics as for a specific repository.	<ol style="list-style-type: none"> 1 Regulated medium depth disposal (10's of metres). 2 Managed as NORM-E waste (un-irradiated uranium)

Waste Class	Waste Description	Waste type / Origin	Waste Criteria	Generic waste treatment / conditioning requirements ⁽¹⁾	Disposal / Management Options
3 LILW-SL	Radioactive waste with low or intermediate short-lived radionuclide and / or low long-lived radionuclide concentrations.	<ol style="list-style-type: none"> Un-irradiated uranium (nuclear fuel production). Fission and activation products (nuclear power generation and isotope production). Sealed sources. 	<ol style="list-style-type: none"> Thermal power (mainly due to short-lived radio nuclides) ($T_{1/2} < 31 \text{ y}$) $< 2 \text{ kW/m}^3$. AND Long-lived radio nuclide ($T_{1/2} > 31 \text{ y}$) concentrations. <ul style="list-style-type: none"> ♦ Alpha: $< 400 \text{ Bq/g}$ ♦ Beta and gamma: $< 4000 \text{ Bq/g}$ (Maximum per waste package up to 10x the concentration levels specified above). OR Long-lived alpha, beta and gamma emitting radionuclides at activity concentration levels that could result in inherent intrusion dose (the intrusion dose assuming the radioactive waste is spread on the surface) below 10 mSv per annum 	Waste package suitable for handling, transport and storage (storage period in the order of 10 years). The waste form shall be solid with additional characteristics as for a specific repository.	<ol style="list-style-type: none"> Regulated near surface disposal ($< 10 \text{ metres}$). Managed as NORM-E waste (un-irradiated uranium)
4 VLLW	Radioactive waste containing very low concentration of radioactivity.	1 Contaminated or slightly radioactive material originating from operation and decommissioning activities.	1 Clearance or authorised discharge or reuse criteria and levels approved by the relevant regulator.	Waste stream specific requirements and conditions.	<ol style="list-style-type: none"> Clearance. Authorized disposal, discharge or reuse
5 NORM-L (low activity)	Potential Radioactive waste containing low concentrations of NORM.	<ol style="list-style-type: none"> Mining and minerals processing. Fossil fuel electricity generation. Bulk waste - un-irradiated uranium (Nuclear fuel production). 	1 Long-lived radio nuclide concentration: $< 100 \text{ Bq/g}$.	Unpackaged waste in a miscible waste form.	<ol style="list-style-type: none"> Re-use as underground backfill material in an underground area. Extraction of any economically recoverable minerals, followed by disposal in any mine tailings dam or other sufficiently confined surface

Waste Class	Waste Description	Waste type / Origin	Waste Criteria	Generic waste treatment / conditioning requirements ⁽¹⁾	Disposal / Management Options
					impoundment 3 Authorised disposal 4 Clearance
6 NORM-E (enhanced activity)	Radioactive waste containing enhanced concentrations of NORM.	1 Scales 2 Soils contaminated with scales	1 Long-lived radio nuclide concentration: > 100 Bq/g.	Packaged or unpackaged waste in a miscible or solid form with additional characteristics for a specific repository.	1 Dilute and re-use as underground backfill material in an identified underground area. 2 Extraction of any economically recoverable minerals, followed by dilution and disposal in an identified mine tailings dam or other sufficiently confined surface impoundment 3 Regulated deep or medium depth disposal.