

Vol. 10 No. 9	CENTRAL SERVICE Teknote For Inter-company Distribution	Page: 1 of 3 Date: 6/2/82
<p style="text-align: center;">HANDLING AND DISPOSING OF DEPLETED URANIUM MATERIAL</p> <p>Several Mevatron 6 and 12 machines use depleted uranium (for the primary collimator, inner and outer jaws and/or a piece of shielding inside the bending magnet assembly) plated with a cadmium layer.</p> <p>Certain precautions are in order for the handling and/or disposing of the items.</p> <p>Radioactivity from the depleted uranium is not the major danger. Depleted uranium's main danger is the possible ingestion of uranium oxide if the protective plating has been damaged.</p> <p>The service engineers should be aware of this potential danger and use caution when handling and/or disposing the items containing the depleted uranium.</p> <p>If there are any visible signs of corrosion, or other physical damage, a wipe test must be performed to verify the integrity of the cadmium plating prior to working in or around areas using depleted uranium.</p> <p style="text-align: center;">CAUTION</p> <p>When handling or disposing of depleted uranium or performing the wipe test, gloves and face mask must be used. All fans, ventilators, heating and air conditioning units must be turned off. When work is finished, place the gloves and face mask in a sealed plastic bag for proper disposal, and wash your hands thoroughly after any contact with depleted uranium.</p>		

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The following machines contain depleted uranium:

Serial No.

1050	Out of service. July 79
1052	Out of service.
1053	Out of service.
1054	Out of service. June 78
1055	Physician Hospital, Bakersfield, CA
1056	Peter Bent Brigham, Boston, MA
1061	Warehouse
1062	Out of service. JM Sunnyvale, CA
1063	Milwaukee County, Milwaukee, WI
1064	Bloemfontein National Hospital, Bloemfontein, RSA
1066	Century Hospital, Los Angeles, CA
1067	Medical Center of Vermont, Burlington, VT
1068	National Institute of Health #2, Bethesda, MD
1069	Dr. F. Chan, Downey, CA
1071	Radiation Medical Group, San Diego, CA
1072	Out of service.
1074	City of Memphis, Memphis, TN
1076	American Oncology, Philadelphia, PA
1079	Hollywood Presbyterian Medical Center, L.A., CA
1081	Santa Rita, Porto Alegre, RS Brazil, #1
1083	Out of service.

As machines are taken out of service, local regulations dealing with the transfer, handling and possible disposal of radioactive materials must be observed.

Due to legal requirements, we are forced to have an up to date machine file on hand. If a machine should be out of service, moved into a different location or sold to another party, please contact the Therapy Service Department in Iselin at once with the information.

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The following machines contain depleted uranium:

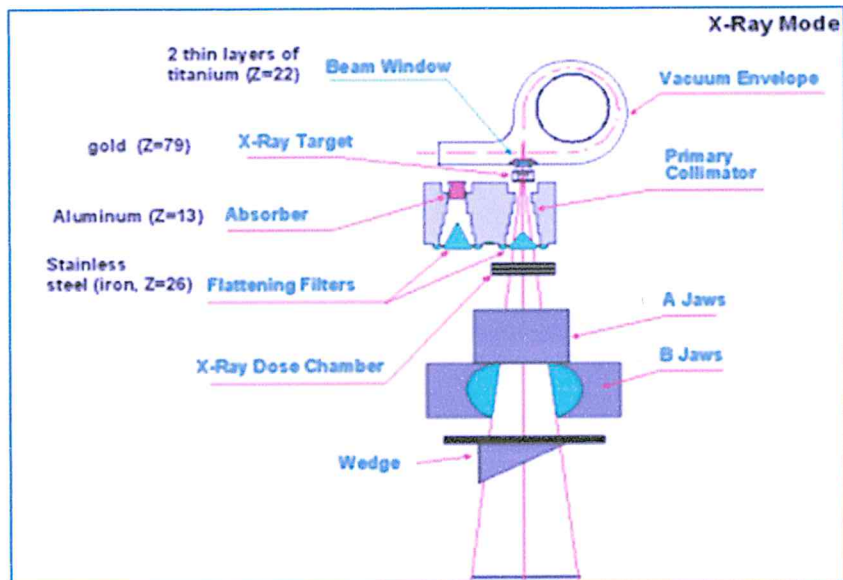
<u>Serial No.</u>	<u>Energy</u>	
1084	6	University of California, San Diego, CA
1096	6	Good Samaritan, Los Angeles, CA
1097	6	Eden Hospital, Castro Valley, CA
1098	6	Arnot Ogden Memorial, Elmira, NY
1099	6	Pomona Valley Community, Pomona, CA
1106	6	Memorial Medical Center, Long Beach, CA
1107	6	Genesee Hospital, Rochester, NY
1108	6	Stamford Hospital, Stamford, CT
1109	6	Onkologiska Klimken, Lund, Sweden
1126	6	University of Virginia, Charlottesville
1127	6	North Side Hospital, Atlanta, GA VA
1128	6	Clinic Dr. Roesler, Recife #3 Brazil
1129	6	St. Benedict, Ogden, UT
1141	6	National Tumor Inst., Milano, Italy
1142	6	Instituto de Urologia, Caracas, Venezuela
1143	6	Clinica Muguerza, Monterrey, Mexico
1144	6	Bishop Clarkson, Omaha, NE
1146	6	Rochester General, Rochester, NY
1161	6	Palo Alto Clinic, Palo Alto, CA
1162	6	University of Kansas, Kansas City, KS
1163	6	Radiation Oncology Group, Anaheim, CA
1164	6	Inst. Ospedalieri, Trento, Italy

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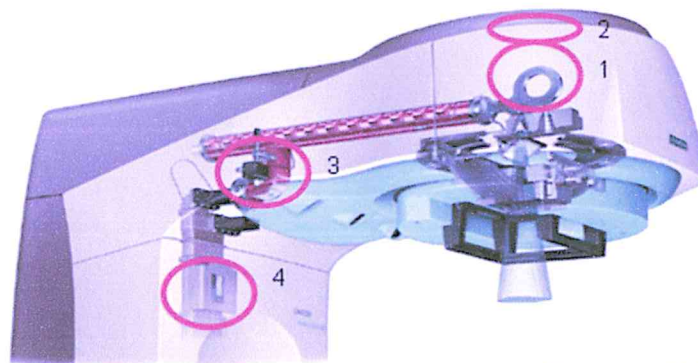
SDH:eb

Possible activated parts in the beam path



- Waveguide (only Envelope and Beam Window)
- Primary Collimator
- X-Ray Target and Absorber
- Flattening Filters and Scattering Foils
- All sliders in the upper defining head
- Dose chamber (photon and electron)
- MLC, and parts of MLC (e.g. Drive Motor Assembly...)
- X Jaws assembly and parts of X Jaws assembly
- Y Jaws assembly and parts of Y-Jaws assembly
- Wedges and electron applicator

Possible activated parts outside of the direct beam path



- Bending Magnet (1)
- Bending Magnet Shield (1)
- Photon Beam Shield (2)
- Permanent Magnet of the Ion Pump (3)
- Permanent Magnet from the Four Port Circulator (4)
- Possible further activation in other parts devices, tools or phantoms inside the treatment room

Fig. 1: Possible activated parts

List of hazardous materials in STANDARD system components

Tab. 2 List of hazardous materials

Components/Model No.	Hazardous materials	Quantity
Structure/ 3226128, 5479295, 5483032, 5836742, 7361400		
Klystron Collector shielding (Fig. 3 / p. 24), (3/Fig. 4 / p. 24), (Fig. 5 / p. 25)	Lead	74 kg
Pulse Tank (4/Fig. 2 / p. 23), Oil pump assembly (1/Fig. 8 / p. 27)	Insulating Oil	150 liters
Gantry/ 5837617		
RF-system (2/Fig. 9 / p. 28)	SF6	0.499 kg
Counterweight G16 (1/Fig. 12 / p. 31)	Lead	21.319 x4+ 7.429 x9 (3) kg
Cathode Shielding G18 (1/Fig. 11 / p. 29)	Lead	1.2 kg
Wave Guide Shielding G17		
M-Class (short) G17 (Fig. 21 / p. 36)(Fig. 20 / p. 36),	Lead	15,033+ 33,67+ 6.284 kg
K-Class (long) G17 (Fig. 20 / p. 36)	Lead	3,691+ 4.118x2+ 26,241+ 11.974x2 6.088x2+ 17.913 kg
Photon shielding kit (Fig. 15 / p. 33), (3, 4/Fig. 16 / p. 34), (3/Fig. 17 / p. 34), (Fig. 18 / p. 35), (1/Fig. 19 / p. 35)	Lead	187.66 kg
Bending Magnet Shieldings H33 (1, 2/Fig. 17 / p. 34), (3, 4/Fig. 16 / p. 34)	Lead	360,53+ 1,16+ 0.14 kg
ARTISTE KV waveguide shielding (Fig. 22 / p. 37)	Lead	19 kg

Components/Model No.	Hazardous materials	Quantity
Upper Defining Head/ 8616034		
Dose chamber shielding H43 or alternatively, for ARTISTE KV systems ARTISTE KV UDH shielding (1/Fig. 35 / p. 44)	Lead	5.65 kg 17.15 kg
Tungsten Target	valuable substance	
Lower Defining Head/ 8616034		
HPD Lead Insert Shielding/ 8616034 (1/Fig. 27 / p. 40)	Lead	16.53 kg
Covers		
High Performance Digital (HPD) Head/ 8616034 (1/Fig. 24 / p. 38)	Lead	24.3 kg
58 Multi-Leaf Collimator (MLC) Head/ 8616034 (1/Fig. 30 / p. 41)	Lead	24.3 kg
82 Multi-Leaf Collimator (MLC) Head/ 8616034 (1/Fig. 30 / p. 41)	Lead	24.3 kg
160 Multi-Leaf Collimator (MLC) Head/ (160 MLC (optional) / p. 41)	Lead	32.0 kg
Control Console/ 5492769, 7334464 (1/Fig. 56 / p. 58)	Lithium battery (BR2330)	1 unit
Control Console Node/ 7351583, 7347946 (1/Fig. 58 / p. 59)	Lithium battery (CR2032)	1 unit
VGA Monitor 17"/ 5491472 (1/Fig. 59 / p. 60)	television tube	1 unit
LCD Monitor 17"/ 7341915 (Fig. 60 / p. 60)	LCD Display	1 unit
Control Console Keyboard (D/E/F/S), Mouse/ all types (2, 3/Fig. 59 / p. 60)	not applicable	not applicable
¹⁾ small amount in the gantry covers		

List of hazardous materials in OPTIONAL system components

Tab. 3 List of hazardous materials

Components/Model No.	Hazardous materials	Quantity
Gantry/ 5837617		
Beam Shielding G15 (1, 2, 3, 5/Fig. 13 / p. 32)	Lead	946,72+ 10.71x2+ 41,22+ 16.347x8 kg
Counterweight Top (300lbs) G15 (4/Fig. 13 / p. 32)	Lead	113.82 kg
Counterweight (660lbs) G15 (6/Fig. 13 / p. 32)	Lead	240.76 kg
Counterweight (900lbs) G15 (7/Fig. 13 / p. 32)	Lead	339.66 kg
58 MLC Controller unit (tower)/ 1945638 (Fig. 38 / p. 46)	Battery	5 units
58 MLC Control Console/ 5479212, 5493882 (1/Fig. 39 / p. 46)	Battery	1 unit
82 MLC Compact Controller/ 5857797 (1/Fig. 41 / p. 47)	Battery	1 unit
160 MLC SCC Unit/ 10045999 (160 MLC SCC Unit / p. 47)	Battery	1 unit
X-ray tube (ARTISTE KV) (X-ray tube unit (optional) / p. 48)	Metallic lead Transformer oil Stator unit: Copper and iron	4 kg 4.6 liters 4.5 kg
IGP Controller 10096773 (IGP controller for the ARTISTE MV/KV positioner / p. 49)	Battery	1 unit
Polydoros F80 (ARTISTE KV) (Fig. 44 / p. 50)	Lithium battery Transformer oil	2 units approximately 28 l
Patient Treatment Table		
ZXT/ 9820952 (Fig. 45 / p. 52)		

Components/Model No.	Hazardous materials	Quantity
Hydraulic system (1/Fig. 47 / p. 53), (1/Fig. 49 / p. 54), (1/Fig. 50 / p. 55)	Oil	5 liters
Electronic unit (2/Fig. 46 / p. 52)	Battery	1 unit
TXT/ 7346534 (Fig. 51 / p. 56)		
Electronic unit (1/Fig. 53 / p. 56)	Lithium battery (CR2032)	1 unit
Coherence (FSC 610) 3099561 (Fig. 61 / p. 61), (1/Fig. 63 / p. 61)	Lithium battery (CR2032)	1 unit
Coherence, Therapist, Impression, Pri- merview, syngo WS (FSC 630)/ 10049274 (Fig. 61 / p. 61), (1/Fig. 63 / p. 61)	Lithium battery (CR2032)	1 unit
syngo RT (FSC640)/ 10145179 (Fig. 64 / p. 62), (1/Fig. 67 / p. 62)	Lithium battery (CR2032)	1 unit
syngo RT (FSC670)/ 10652491 (Fig. 71 / p. 63)	Lithium battery (CR2032)	1 unit
LCD monitor 19"/ 7336428 (Fig. 60 / p. 60)	LCD Display	1 unit
Keyboard (D/E/F/S), Mouse/ all types (2, 3/Fig. 59 / p. 60)	n.a.	n.a.
1) small amount in the gantry covers		