Plan

Plan ID: IM149
Description: IMRT plan with 9 equidistant fields
Creation time: 05 September 2023 23:47:32 (UTC+0)
Plan created for: Phase 1 fractions 1-25 (25 Fx)
Plan is used for: Phase 1 fractions 1-25 (25 Fx)
NOTE: Please refer to the latest RT intent report for an up-to-date number of fractions for which the plan is to be used.

Diagnosis

Anatomical site: Cervix
Diagnosis: Cervix

Phase

Template: Cervix SIB (MRI Only Workflow)

Phase 1	4 targets	25 fractions
GTV_55	55.00 Gy	2.20 Gy/fx
PTV_45	45.00 Gy	1.80 Gy/fx
CTV_45	45.00 Gy	1.80 Gy/fx
PTV_55	55.00 Gy	2.20 Gy/fx

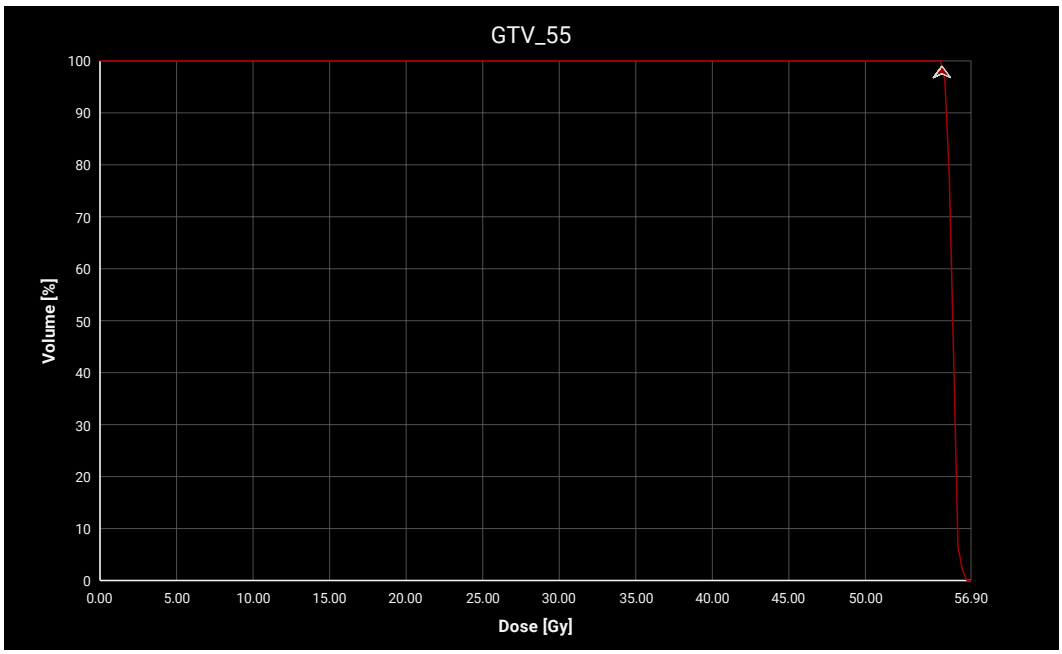
Plan type: Adaptive
Treatment frequency: One session per treatment day
Normalization: No normalization
DVH estimation model:
Bolus: No

Clinical Goals and Achieved Values

Targets

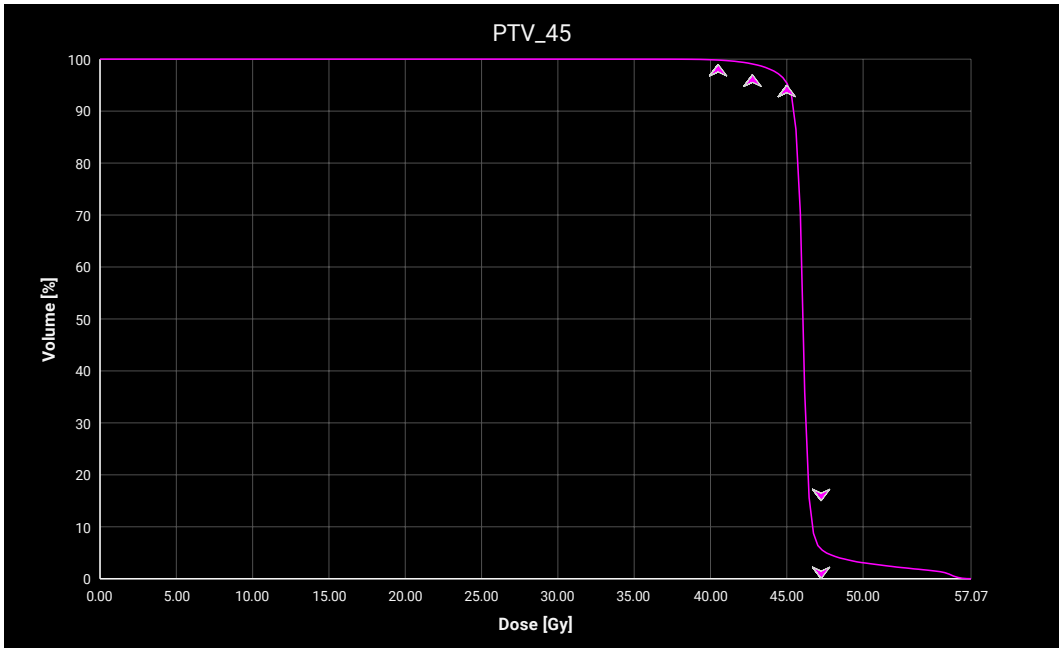
GTV_55

	Goal	Achieved Value	Goal status
P1	V100.0 % (55.00 Gy) ≥ 99.0 % (2.33 cm3) Var: V100.0 % (55.00 Gy) ≥ 98.0 % (2.30 cm3)	100.0 % (2.35 cm3)	Met



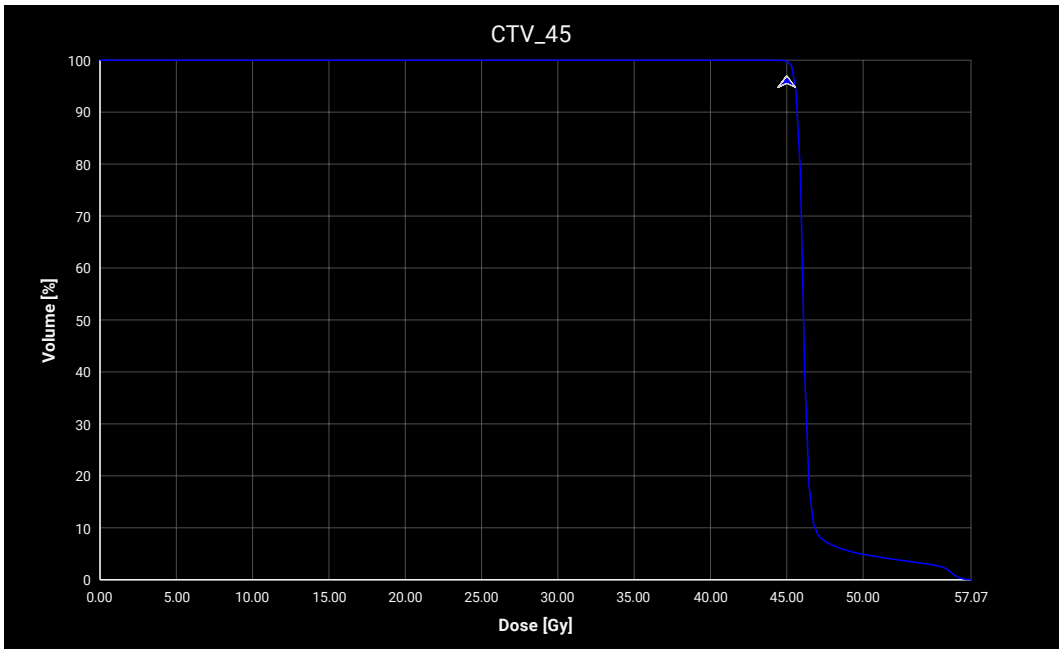
PTV_45

	Goal	Achieved Value	Goal status
P1	V100.0 % (45.00 Gy) ≥ 95.0 % (864.26 cm3) Var: V100.0 % (45.00 Gy) ≥ 93.0 % (846.06 cm3)	95.4 % (867.92 cm3)	Met
P1	V95.0 % (42.75 Gy) ≥ 97.0 % (882.45 cm3) Var: V95.0 % (42.75 Gy) ≥ 95.0 % (864.26 cm3)	99.1 % (901.31 cm3)	Met
P1	D99.0 % (900.65 cm3) ≥ 90.0 % (40.50 Gy) Var: D99.0 % (900.65 cm3) ≥ 88.0 % (39.60 Gy)	95.2 % (42.85 Gy)	Met
P1	D0.03 cm3 ≤ 47.25 Gy Var: D0.03 cm3 ≤ 50.00 Gy	57.29 Gy	Not met
P1	V105.0 % (47.25 Gy) ≤ 15.0 % (136.46 cm3) Var: V105.0 % (47.25 Gy) ≤ 50.0 % (454.87 cm3)	5.7 % (51.89 cm3)	Met



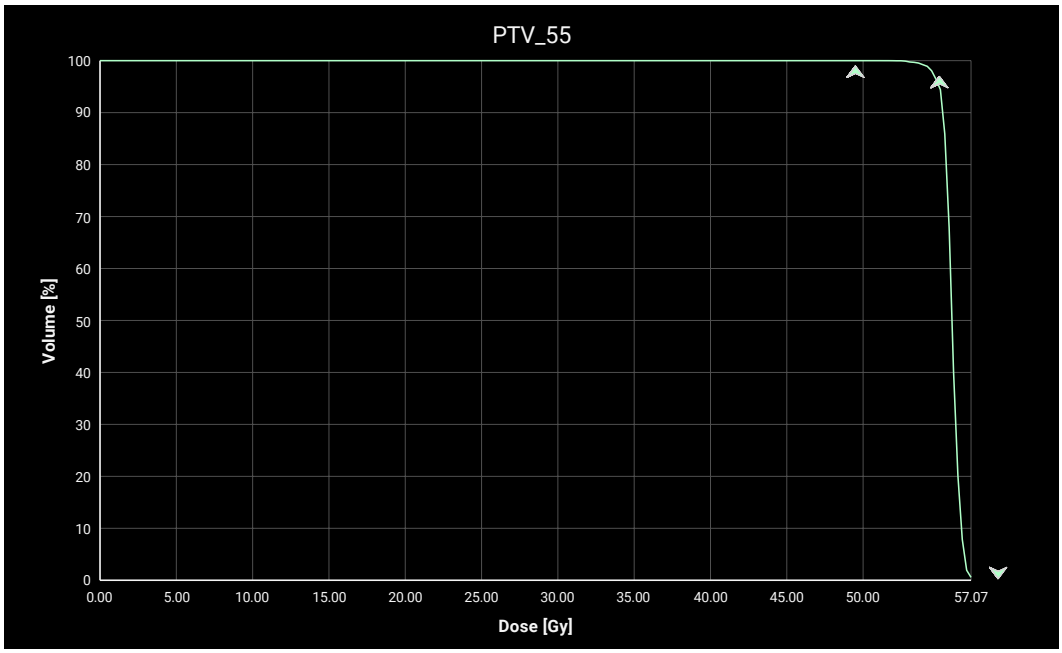
CTV_45

	Goal	Achieved Value	Goal status
P2	D97.0 % (444.97 cm3) > 45.00 Gy Var: D97.0 % (444.97 cm3) ≥ 43.65 Gy	45.47 Gy	Met



PTV_55

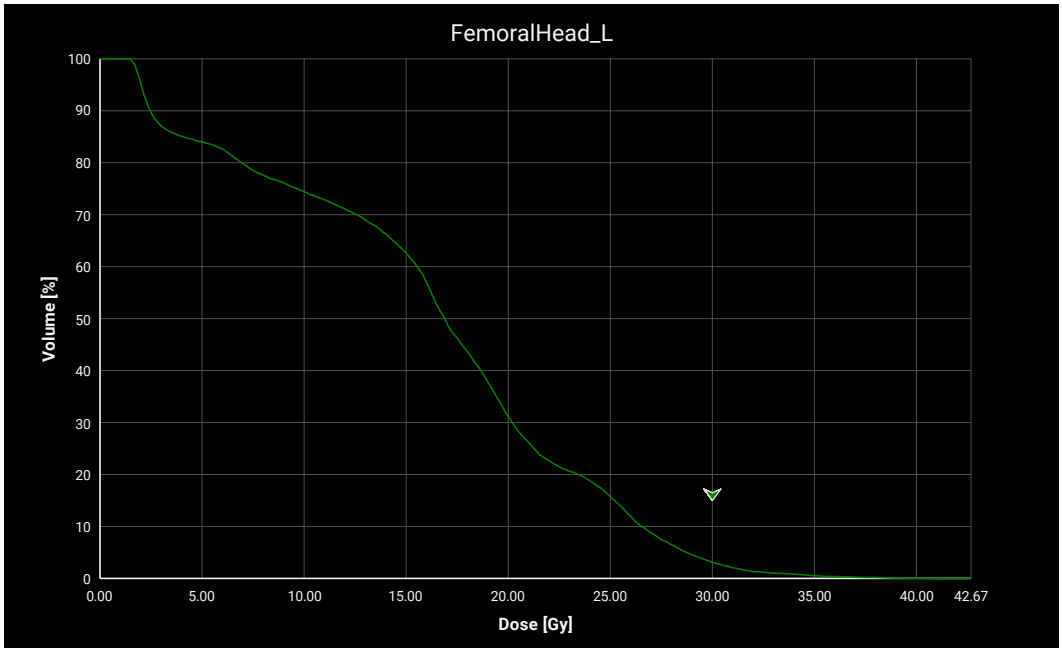
	Goal	Achieved Value	Goal status
P1	D0.03 cm3 ≤ 58.85 Gy Var: D0.03 cm3 ≤ 60.50 Gy	57.29 Gy	Met
P1	V100.0 % (55.00 Gy) ≥ 97.0 % (10.89 cm3) Var: V100.0 % (55.00 Gy) ≥ 95.0 % (10.66 cm3)	95.3 % (10.70 cm3)	Within variation
P2	D99.0 % (11.11 cm3) ≥ 90.0 % (49.50 Gy) Var: D99.0 % (11.11 cm3) ≥ 88.0 % (48.40 Gy)	98.3 % (54.05 Gy)	Met



Organs

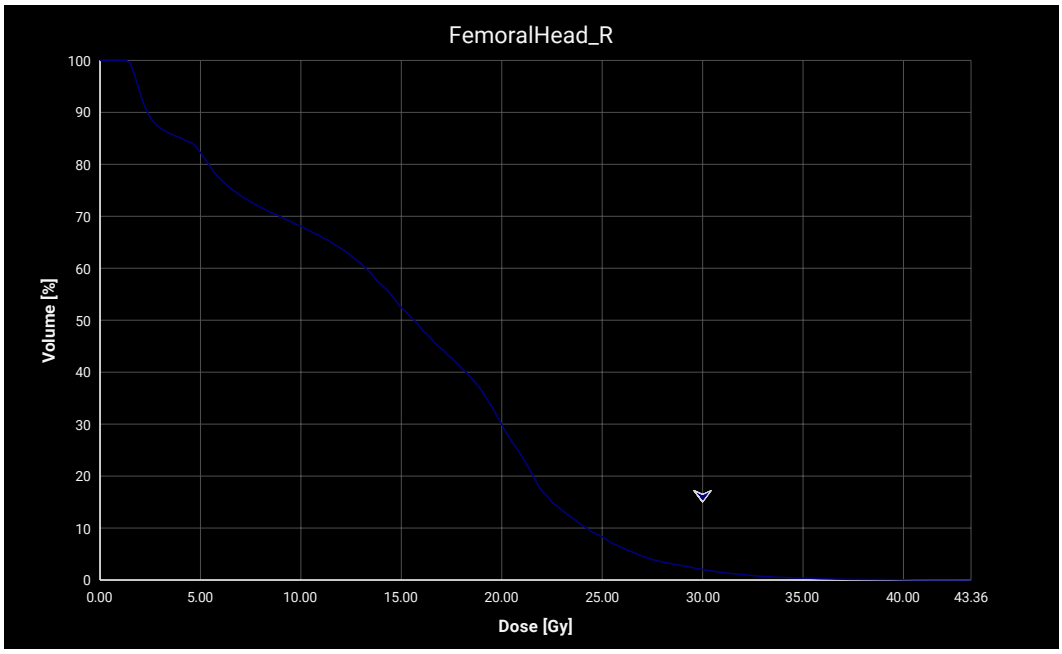
FemoralHead_L

	Goal	Achieved Value	Goal status
P4	D15.0 % (14.80 cm3) ≤ 30.00 Gy Var: D15.0 % (14.80 cm3) ≤ 50.00 Gy	25.22 Gy	Met
P4	D0.03 cm3 ≤ 50.00 Gy Var: D0.03 cm3 ≤ 55.00 Gy	39.59 Gy	Met



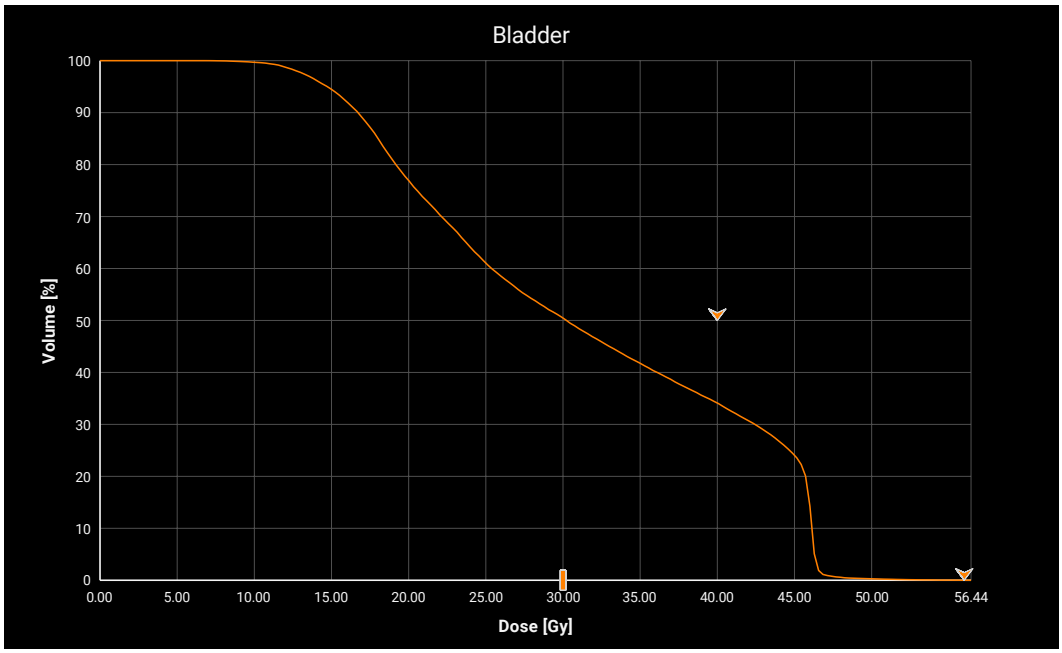
FemoralHead_R

	Goal	Achieved Value	Goal status
P4	D15.0 % (15.35 cm3) ≤ 30.00 Gy Var: D15.0 % (15.35 cm3) ≤ 50.00 Gy	22.50 Gy	Met
P4	D0.03 cm3 ≤ 50.00 Gy Var: D0.03 cm3 ≤ 55.00 Gy	40.13 Gy	Met



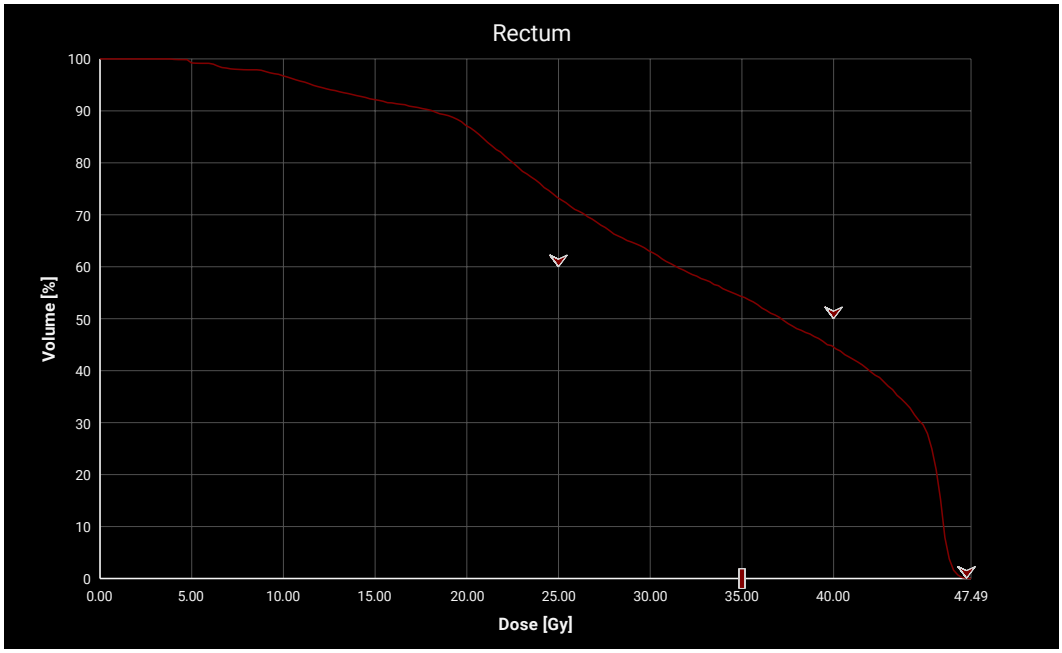
Bladder

	Goal	Achieved Value	Goal status
P1	D0.03 cm3 ≤ 56.00 Gy Var: D0.03 cm3 ≤ 57.55 Gy	56.00 Gy	Met
P2	D50.0 % (226.32 cm3) ≤ 40.00 Gy Var: D50.0 % (226.32 cm3) ≤ 55.00 Gy	30.23 Gy	Met
P3	Dmean ≤ 30.00 Gy Var: Dmean ≤ 40.00 Gy	31.37 Gy	Within variation

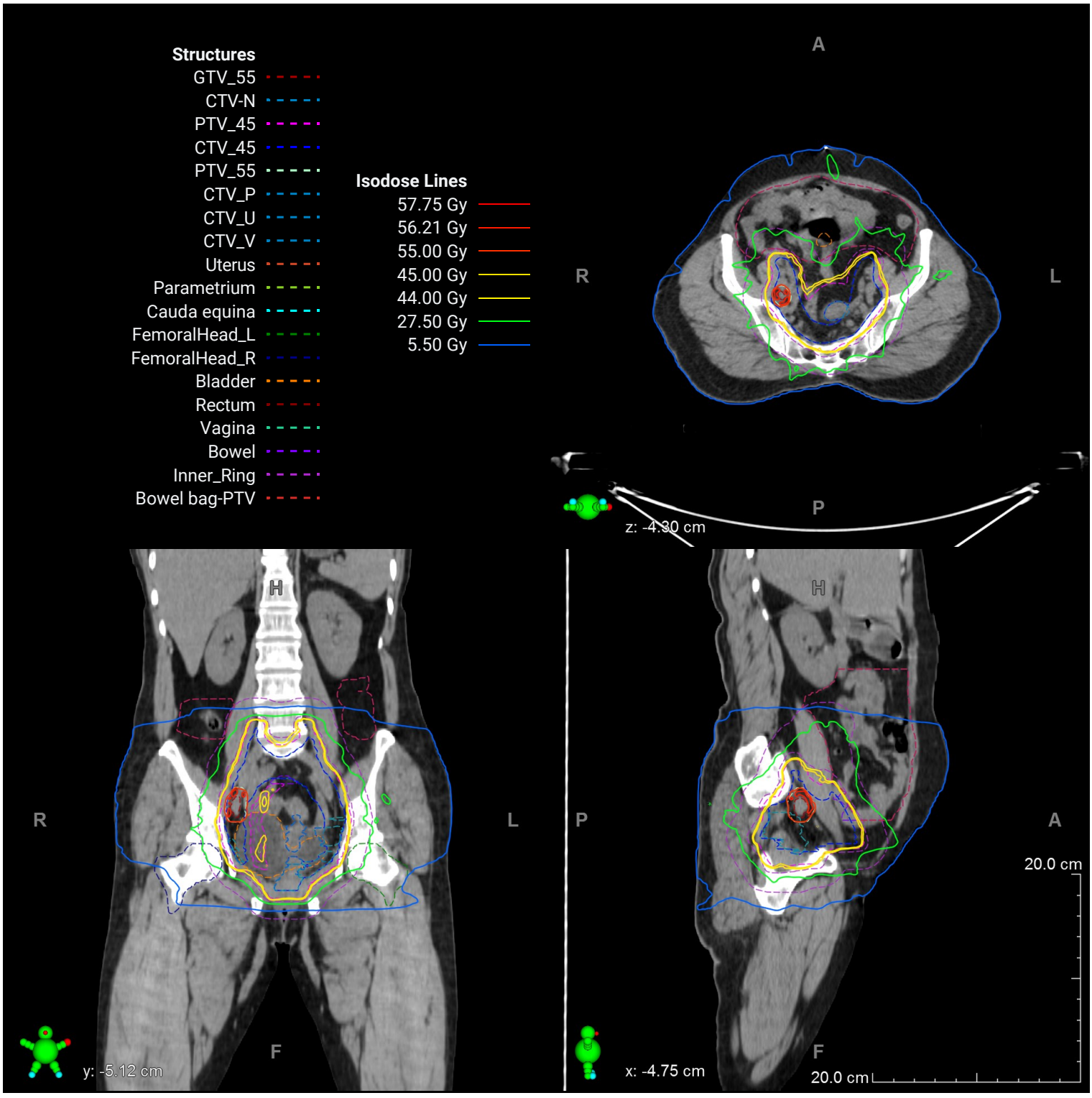


Rectum

	Goal	Achieved Value	Goal status
P1	D0.03 cm3 ≤ 47.25 Gy Var: D0.03 cm3 ≤ 50.00 Gy	47.07 Gy	Met
P2	D60.0 % (33.63 cm3) < 25.00 Gy Var: D60.0 % (33.63 cm3) ≤ 50.00 Gy	31.38 Gy	Within variation
P2	D50.0 % (28.03 cm3) ≤ 40.00 Gy Var: D50.0 % (28.03 cm3) ≤ 54.00 Gy	37.18 Gy	Met
P3	Dmean ≤ 35.00 Gy Var: Dmean ≤ 40.00 Gy	34.05 Gy	Met



Global Maximum Dose: 57.36 Gy



Warnings and errors

Dose calculation

Warnings
1. The minimum HU value in the image (-1796 HU) is outside of the range of the CT calibration curve for mass density. Extend the calibration curve.

Plan validation

Warnings
1. The image CT scanner GE MEDICAL SYSTEMS Discovery 600 has not been calibrated. Using calibration curves from default CT scanner DefaultCTScanner instead.

Plan

Planning directive

Phase 1	25 fx	4 targets
PTV_45	45.00 Gy	1.80 Gy/Fx
CTV_45	45.00 Gy	1.80 Gy/Fx
GTV_55	55.00 Gy	2.20 Gy/Fx
PTV_55	55.00 Gy	2.20 Gy/Fx

Normalization goal: No normalization
Normalization factor: 1.000

Treatment unit

TPS name:	Ethos Treatment Planning	Particle type:	Photon
Treatment units:	RDSMCH1, Halcyon 1	Energy:	6 MV
Dose calibration depth:	1.30 cm	Primary fluence mode:	FFF

Fields

Treatment orientation: HFS

Isocenter 1
Position (DICOM) X: 0.15 cm Y: -4.68 cm Z: -6.10 cm
Scale IEC61217

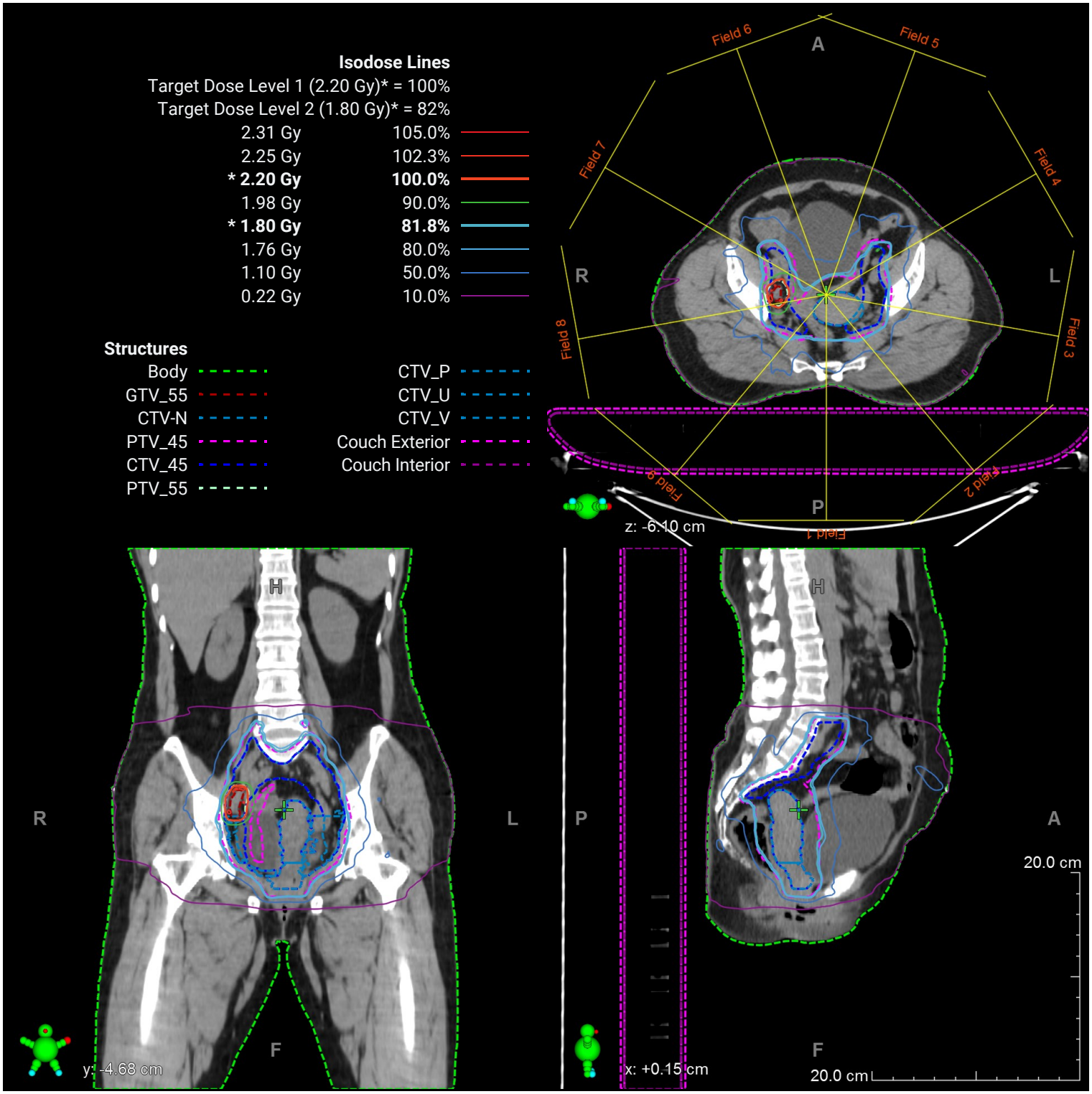
Field name		Gantry [°]	Collimator [°]	MU
Field 1	IMRT	180.0°	10.0°	205.3 MU
Field 2	IMRT	140.0°	10.0°	152.1 MU
Field 3	IMRT	100.0°	10.0°	203.3 MU
Field 4	IMRT	60.0°	10.0°	202.9 MU
Field 5	IMRT	20.0°	10.0°	207.9 MU
Field 6	IMRT	340.0°	10.0°	210.6 MU
Field 7	IMRT	300.0°	10.0°	202.7 MU
Field 8	IMRT	260.0°	10.0°	200.2 MU
Field 9	IMRT	220.0°	10.0°	199.6 MU

Total	1784.6 MU

Isocenter 1

Isocenter 1

X: 0.15 cm Y: -4.68 cm Z: -6.10 cm



Summary

Dose

Grid size:	X: 144 Y: 104 Z: 208
Grid resolution:	X: 0.25 cm Y: 0.25 cm Z: 0.25 cm
Dose reporting condition:	Dose to medium, transport in medium

Primary image

ID:	CT
Size:	X: 512 Y: 512 Z: 208
Resolution:	X: 0.12 cm Y: 0.12 cm Z: 0.25 cm
Acquisition time:	24 July 2023 15:51:58 (UTC+0)
CT scanner:	DefaultCTScanner
Last approved by:	PhiTest01
Last approved on:	07 April 2021 09:43:52 (UTC+0)

Plan

DICOM UID:	1.2.246.352.800.5713858021992538711.380769801779866780

Technical structures

Simulation isocenter

Position (DICOM)	X: 0.00 cm Y: 0.00 cm Z: 0.00 cm

Couch plane

Position (DICOM)	X: -30.50 cm Y: 6.25 cm Z: -32.80 cm
Couch type:	Halcyon couch

Density corrections

Structure name	Material name	Electron density
Titanium1	Titanium Alloy	3.17
Water1	Water	1.00

Instances:	2
Total volume:	0.44 cm3

Calculation logs

Plan optimization

Algorithm version: 1.1.1001.148

Language of dose calculation log messages: EN.
Device used for GPU acceleration: Tesla P100-PCIE-16GB
Planning Algorithm Library version 2.4.0.24 87d6b8bc6d761ca8d4c872c5d6986751cc69c21f
Device used for GPU acceleration: Tesla P100-PCIE-16GB
Beam data directory: C:\ProgramData\SF\Calculation\Fabric\work\Applications\CalculationQueueWorker_App39\CalculationQueueWorkerServiceManifest.Algorithms.1.1.1001.148.1.0.0\AutomatedPlanning.1.1.1001\BeamData//PO
Dose calculation algorithm = FTDCGPU
MLC Tongue and Groove width set to: Distal 0.040 cm, Proximal 0.056 cm.
Inhomogeneity correction = On
Air cavity correction = Off
Automatic feathering = Off
Field-grouping z-threshold = 30.00 mm
Dose calculation resolution = 2.50 mm
Structure resolution = 2.50 mm
Target projection margin = 6.00 mm
Automatic lower dose objective control = Off
Automatic target overlap control = On
IMRT minimum fluence factor = 0.000
Field 1: Fixed jaws on.
Field 2: Fixed jaws on.
Field 3: Fixed jaws on.
Field 4: Fixed jaws on.
Field 5: Fixed jaws on.
Field 6: Fixed jaws on.
Field 7: Fixed jaws on.
Field 8: Fixed jaws on.
Field 9: Fixed jaws on.
Patient support device 'Structure: 22' used in dose calculation, material: 'Water', density: 0.710938 g/cm3.
Patient support device 'Structure: 23' used in dose calculation, material: 'Air', density: 0.001110 g/cm3.
Structure 'Structure: 19' used in dose calculation, material: 'Ti6Al4V_ELC', density: 4.420000 g/cm3.
Structure 'Structure: 20' used in dose calculation, material: 'Water', density: 1.000000 g/cm3.
Highest mass density in dose calculation: 2.488 g/cm3.
Volume of mass density higher than 2.0 g/cm3 used in automatic material assignment: 0.092 cm3.
Reporting dose to medium.
IMRT field normalization
Machine directory: C:\ProgramData\SF\Calculation\Fabric\work\Applications\CalculationQueueWorker_App39\CalculationQueueWorkerServiceManifest.Algorithms.1.1.1001.148.1.0.0\AutomatedPlanning.1.1.1001\BeamData//AXB/dmx/
Treatment unit: RDS_DMX, energy: 6X-FFF
Calculation is using Preconfigured Beam Data version 4.0.
MLC Tongue and Groove width set to: Distal 0.040 cm, Proximal 0.056 cm.
The automated planning task took 85.948 seconds.

Dose calculation

Algorithm version: 1.1.1001.148

Messages
Structure with type "ControlRegion" and name "Titanium1" is used in dose calculation. The density of the structure is 4.420 g/cm3 and the material is "Ti6Al4V_ELC".
Structure with type "ControlRegion" and name "Water1" is used in dose calculation. The density of the structure is 1.000 g/cm3 and the material is "Water".
Structure with type "PatientSupportDevice" and name "Couch Exterior" is used in dose calculation. The density of the structure is 0.711 g/cm3 and the material is "Water".
Structure with type "PatientSupportDevice" and name "Couch Interior" is used in dose calculation. The density of the structure is 0.001 g/cm3 and the material is "Air".
Language of dose calculation log messages: EN.
AcurosCalculationOptions.AutomaticHighDensityMaterial__ = Bone
AcurosCalculationOptions.CalculationGridSizeInCM = 0.250
AcurosCalculationOptions.DoseReportingMode = Dose to medium
AcurosCalculationOptions.FieldNormalizationType = No field normalization
AcurosCalculationOptions.HeterogeneityCorrection = ON
AcurosCalculationOptions.MaximumAutomaticHighDensityVolumeInCM3__ = 1.000
AcurosCalculationOptions.PlanDoseCalculation = ON
AcurosCalculationOptions.UseGPU = Yes
Machine directory: C:\ProgramData\SF\Calculation\Fabric\work\Applications\CalculationQueueWorker_App39\CalculationQueueWorkerServiceManifest.Algorithms.1.1.1001.148.1.0.0\DoseCalculationTask.1.1.1001\AcurosBeamData\/dmx/
Treatment unit: RDS_DMX, energy: 6X-FFF
Calculation is using Preconfigured Beam Data version 4.0.
Patient support device 'Couch Exterior' used in dose calculation, material: 'Water', density: 0.710938 g/cm3.
Patient support device 'Couch Interior' used in dose calculation, material: 'Air', density: 0.001110 g/cm3.
Structure 'Titanium1' used in dose calculation, material: 'Ti6Al4V_ELC', density: 4.420000 g/cm3.
Structure 'Water1' used in dose calculation, material: 'Water', density: 1.000000 g/cm3.
The following MLC dosimetric parameters read from MLC add-on beam data are used in dose calculation.
Distal MLC TnG step width = 0.040 cm.
Proximal MLC TnG step width = 0.056 cm.
MLC dosimetric leaf gap = 0.010 cm.
MLC leaf transmission factor = 0.005 .
MLC Tongue and Groove width set to: Distal 0.040 cm, Proximal 0.056 cm.
Fluence Pixel Size 1.250x1.250 mm2.
Effective interleaf gap = 0.00079 cm.
Modulation factor: 1.9396.
Modulation factor: 2.6307.
Modulation factor: 3.8825.
Modulation factor: 2.6293.
Modulation factor: 2.8708.
Modulation factor: 1.3066.
Modulation factor: 2.5868.
Modulation factor: 2.3599.
Modulation factor: 2.4495.
Highest mass density in dose calculation: 2.488 g/cm3.
Volume of mass density higher than 2.0 g/cm3 used in automatic material assignment: 0.092 cm3.
Reporting dose to medium.
Flattening MLC sequence recognized on a Halcyon machine. IMRT normalization is not used, but instead the field normalization follows the regular normalization rules for a static field.
No field normalization
The dose calculation task took 37.655 seconds.

Current Plan Approval Status

Clinical Approval: Not approved
Technical Approval: Not approved

Plan Approval Log

There are no approvals for the plan.