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APPENDIX D

CALCULATION OF TWO HIGH-END CODISPOSAL PARAMETERS

(Data presented in Tables D.1 through D.9 are from the 1995 Listing Background Document (USEPA, 1995a,) Study of Select Petroleum Petroleum Refining Residuals (USEPA, 1996a), and RCRA CBI Documents (RCRA CBI, 1995))

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Table D.1 Co-disposal Data for Two High-End parameter Analysis, Arsenic in On-site Landfills

Waste Stream Name	constituent	50-th Percentile Annual Waste Mass (MT)	Waste Density (MT/cu.m)	50-th Percentile 20-yr Waste Mass (MT)	50-th Percentile 20-yr Waste Vol. (CU.M.)	Mean Cw (mg/kg)	Mean TCLP (mg/l)	90-th Percentile Area (sq.m.)	50-th Percentile Depth (m)
Claus	Arsenic	30.0	2.50	600.0	240.0	9.30	0.00	145692	3.66
CSO	Arsenic	184.5	1.40	3690.0	2635.7	2.90	0.00	121410	2.13
Desalting Sludge	Arsenic	51.0	1.10	1020.0	927.3	22.00	0.00		
Extraction clay	Arsenic	224.4	1.00	4488.0	4488.0	0.00	0.00		
FCCC+FCCF	Arsenic	412.0	1.50	8240.0	5493.3	4.40	0.00	202350	1.52
HF ALK	Arsenic	1448.0	1.18	28960.0	24542.4	3.40	0.00	28329	0.91
HF Alkylation Clay	Arsenic	34.8	1.24	696.0	561.3	12.30	0.00		
Isomer. Clay	Arsenic	23.4	1.20	468.0	390.0	0.00	0.00		
OFF SPEC	Arsenic	90.7	1.26	1814.0	1439.7	0.00	0.00	202350	0.15
OFF SPEC Sulfur	Arsenic	22.6	1.20	451.0	375.8	0.00	0.00		
Phos. Acid Catalyst	Arsenic	41.0	1.36	820.0	602.9	72.10	0.12		
Process Sludge from Residual Upgrading	Arsenic	3.7	1.08	73.0	67.6	43.00	0.00		
Reforming Cata.	Arsenic	0.5	2.60	10.0	3.8	19.30	0.00		
Residual Oil Sludge	Arsenic	10.1	1.20	202.0	168.3	2.00	0.00		
SCOT	Arsenic	9.3	1.75	186.0	106.3	19.30	0.00	121410	8.23
SCS	Arsenic	4.0	1.50	80.0	53.3	34.40	0.14	145692	2.13
Spent Dimersol Catalyst	Arsenic	8.8	1.20	176.0	146.7	72.10	0.12		
Treating Clay from ClayFiltering	Arsenic	68.8	1.30	1376.0	1058.5	8.55	0.07		
UGTS	Arsenic	6.3	1.40	125.0	89.3	97.30	0.00	145692	1.83

Aggregate Input Parameters Used in Co-disposal Analysis	Vol. Loaded Waste Density (MT/cu.m)	50-th Perc. 20-yr Waste Vol. (CU.M.)	Volume Weighted Mean Cw (mg/kg)	Volume Weighted Mean TCLP (mg/l)	90-th Perc. of the 90-th Perc. Waste Unit Areas (sq.m.)	50-th Depth of the 50-th Perc. Waste Unit Depths (m)
Waste and Waste Unit Parameters	1.23	43390.25	5.16	0.004	202350.00	1.83

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Table D.2 Co-disposal Data for Two High-End parameter Analysis, Benzene in On-site Landfills

Waste Stream Name	constituent	50-th Percentile Annual Waste Mass (MT)	Waste Density (MT/cu.m)	50-th Percentile 20-yr Waste Mass (MT)	50-th Percentile 20-yr Waste Vol. (CU.M.)	Mean Cw (mg/kg)	Mean TCLP (mg/l)	90-th Percentile Area (sq.m.)	50-th Percentile Depth (m)
Claus	Benzene	30.0	2.50	600.0	240.0	0.00	0.00	145692	3.66
CSO	Benzene	184.5	1.40	3690.0	2635.7	1.20	0.06	121410	2.13
Desalting Sludge	Benzene	51.0	1.10	1020.0	927.3	93.00	2.39		
Extraction clay	Benzene	224.4	1.00	4488.0	4488.0	2.50	0.05		
FCCC+FCCF	Benzene	412.0	1.50	8240.0	5493.3	0.00	0.00	202350	1.52
HF ALK	Benzene	1448.0	1.18	28960.0	24542.4	4.34	0.08	28329	0.91
HFAlkylation Clay	Benzene	34.8	1.24	696.0	561.3	0.05	0.00		
Isomer. Clay	Benzene	23.4	1.20	468.0	390.0	2.50	0.05		
OFF SPEC	Benzene	90.7	1.26	1814.0	1439.7	0.47	0.00	202350	0.15
OFF SPEC Sulfur	Benzene	22.6	1.36	451.0	331.6	0.00	0.00		
Phos. Acid Catalyst	Benzene	41.0	0.96	820.0	854.2	0.00	0.00		
Process Sludge from Residual Upgrading	Benzene	3.7	1.08	73.0	67.6	73.00	2.60		
Reforming Cata.	Benzene	0.5	2.60	10.0	3.8	5.05	0.65		
Residual Oil Sludge	Benzene	10.1	1.20	202.0	168.3	0.00	0.00		
SCOT	Benzene	9.3	1.75	186.0	106.3	0.03	0.00	121410	8.23
SCS	Benzene	4.0	1.50	80.0	53.3	0.26	0.03	145692	2.13
Spent Dimersol Catalyst	Benzene	8.8	1.20	176.0	146.7	0.00	0.00		
Treating Clay from ClayFiltering	Benzene	68.8	1.30	1376.0	1058.5	3.43	0.07		
UGTS	Benzene	6.3	1.40	125.0	89.3	51.90	0.75	145692	1.83

Aggregate Input Parameters Used in Co-disposal Analysis	Vol. Loaded Waste Density (MT/cu.m)	50-th Perc. 20-yr Waste Vol. (CU.M.)	Volume Weighted Mean Cw (mg/kg)	Volume Weighted Mean TCLP (mg/l)	90-th Perc. of the 90-th Perc. Waste Unit Areas (sq.m.)	50-th Depth of the 50-th Perc. Waste Unit Depths (m)
Waste and Waste Unit Parameters	1.23	43390.25	5.09	0.11	202350.00	1.83

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Table D.3 Co-disposal Data for Two High-End parameter Analysis, Benzene with TC Cap in On-site Landfills

Waste Stream Name	constituent	50-th Percentile Annual Waste Mass (MT)	Waste Density (MT/cu.m)	50-th Percentile 20-yr Waste Mass (MT)	50-th Percentile 20-yr Waste Vol. (CU.M.)	50-th Percentile Cw (mg/kg)	50-th Percentile TCLP (mg/l)	90-th Percentile Area (sq.m.)	50-th Percentile Depth (m)
Claus	Benzene	30.0	2.50	600.0	240.0	0.00	0.00	145692	3.66
CSO	Benzene	184.5	1.40	3690.0	2635.7	1.20	0.06	121410	2.13
Desalting Sludge	Benzene	51.0	1.10	1020.0	927.3	93.00	0.50		
Extraction clay	Benzene	224.4	1.00	4488.0	4488.0	2.50	0.05		
FCCC+FCCF	Benzene	412.0	1.50	8240.0	5493.3	0.00	0.00	202350	1.52
HF ALK	Benzene	1448.0	1.18	28960.0	24542.4	4.34	0.08	28329	0.91
HFAlkylation Clay	Benzene	34.8	1.24	696.0	561.3	0.05	0.00		
Isomer. Clay	Benzene	23.4	1.20	468.0	390.0	2.50	0.05		
OFF SPEC	Benzene	90.7	1.26	1814.0	1439.7	0.47	0.00	202350	0.15
OFF SPEC Sulfur	Benzene	22.6	1.36	451.0	331.6	0.00	0.00		
Phos. Acid Catalyst	Benzene	41.0	0.96	820.0	854.2	0.00	0.00		
Process Sludge from Residual Upgrading	Benzene	3.7	1.08	73.0	67.6	73.00	0.50		
Reforming Cata.	Benzene	0.5	2.60	10.0	3.8	5.05	0.50		
Residual Oil Sludge	Benzene	10.1	1.20	202.0	168.3	0.00	0.00		
SCOT	Benzene	9.3	1.75	186.0	106.3	0.03	0.00	121410	8.23
SCS	Benzene	4.0	1.50	80.0	53.3	0.26	0.03	145692	2.13
Spent Dimersol Catalyst	Benzene	8.8	1.20	176.0	146.7	0.00	0.00		
Treating Clay from ClayFiltering	Benzene	68.8	1.30	1376.0	1058.5	3.43	0.07		
UGTS	Benzene	6.3	1.40	125.0	89.3	51.90	0.50	145692	1.83

Aggregate Input Parameters Used in Co-disposal Analysis	Vol. Loaded Waste Density (MT/cu.m)	50-th Perc. 20-yr Waste Vol. (CU.M.)	Volume Weighted Mean Cw (mg/kg)	Volume Weighted Mean TCLP (mg/l)	90-th Perc. of the 90-th Perc. Waste Unit Areas (sq.m.)	50-th Depth of the 50-th Perc. Waste Unit Depths (m)
Waste and Waste Unit Parameters	1.23	43390.25	5.09	0.07	202350.00	1.83

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Table D.4 Co-disposal Data for Two High-End Parameter Analysis, Arsenic in Off-site Landfills with Hydrocracking

Waste Stream Name	constituent	50-th Percentile Annual Waste Mass (MT)	Waste Density (MT/cu.m)	50-th Percentile 20-yr Waste Mass (MT)	50-th Percentile 20-yr Waste Vol. (CU.M.)	Mean Cw (mg/kg)	Mean TCLP (mg/l)	90-th Percentile Area (sq.m.)	50-th Percentile Depth (m)
Claus	Arsenic	30.0	2.50	600.0	240.0	9.30	0.00	162000	2.6
COTS	Arsenic	29.8	1.52	595.0	391.4	14.80	0.00	162000	2.6
CSO	Arsenic	184.5	1.40	3690.0	2635.7	2.90	0.00	162000	2.6
Desalting Sludge	Arsenic	2.1	1.10	41.2	37.5	22.00	0.00	162000	2.6
Extraction clay	Arsenic	88.4	1.00	1768.0	1768.0	0.00	0.00	162000	2.6
FCCC+FCCF	Arsenic	605.0	1.50	12100.0	8066.7	4.40	0.00	162000	2.6
HF ALK	Arsenic	1448.0	1.18	28960.0	24542.4	3.40	0.00	162000	2.6
HF Alkylation Clay	Arsenic	22.6	1.24	452.0	364.5	12.30	0.00	162000	2.6
HYDRCRACKING	Arsenic	110.0	1.74	2200.0	1264.4	15.30	0.00	162000	2.6
Isomer. Clay	Arsenic	14.4	1.20	288.0	240.0	0.00	0.00	162000	2.6
OFF SPEC	Arsenic	90.7	1.26	1814.0	1439.7	0.00	0.00	162000	2.6
Phos. Acid Catalyst	Arsenic	119.0	0.96	2380.0	2479.2	72.10	0.12	162000	2.6
Process Sludge from Residual Upgrading	Arsenic	11.5	1.08	229.2	212.2	43.00	0.00	162000	2.6
Reforming Cata.	Arsenic	0.2	2.60	4.0	1.5	19.30	0.00	162000	2.6
Residual Oil Sludge	Arsenic	496.8	1.20	9936.0	8280.0	2.00	0.00	162000	2.6
SAAS	Arsenic	5.0	1.79	100.0	55.9	2.40	0.00	162000	2.6
SCOT	Arsenic	9.3	1.75	186.0	106.3	19.30	0.00	162000	2.6
SCS	Arsenic	4.0	1.50	80.0	53.3	34.40	0.14	162000	2.6
Treating Clay from ClayFiltering	Arsenic	40.0	1.30	800.0	615.4	8.55	0.07	162000	2.6
UGTS	Arsenic	6.3	1.40	125.0	89.3	97.30	0.00	162000	2.6
OFF SPEC Sulfur	Arsenic	123.0	1.36	2460.2	1809.0	0.00	0.00	162000	2.6

Aggregate Input Parameters Used in Co-disposal Analysis	Vol. Loaded Waste Density (MT/cu.m)	50-th Perc. 20-yr Waste Vol. (CU.M.)	Volume Weighted Mean Cw (mg/kg)	Volume Weighted Mean TCLP (mg/l)	90-th Perc. of the 90-th Perc. Waste Unit Areas (sq.m.)	50-th Perc of the 50-th Perc. Waste Unit Depths (m)
Waste and Waste Unit Parameters	1.26	54692.28	6.98	0.006	162000.00	2.60

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Table D.5 Co-disposal Data for Two High-End Parameter Analysis, Benzene in Off-site Landfills with Hydrocracking

Waste Stream Name	constituent	50-th Percentile Annual Waste Mass (MT)	Waste Density (MT/cu.m)	50-th Percentile 20-yr Waste Mass (MT)	50-th Percentile 20-yr Waste Vol. (CU.M.)	Mean Cw (mg/kg)	Mean TCLP (mg/l)	90-th Percentile Area (sq.m.)	50-th Percentile Depth (m)
Claus	Benzene	30.0	2.50	600.0	240.0	0.00	0.00	162000	2.6
COTS	Benzene	29.8	1.52	595.0	391.4	58.73	0.68	162000	2.6
CSO	Benzene	184.5	1.40	3690.0	2635.7	1.20	0.06	162000	2.6
Desalting Sludge	Benzene	2.1	1.10	41.2	37.5	93.00	2.39	162000	2.6
Extraction clay	Benzene	88.4	1.00	1768.0	1768.0	2.50	0.05	162000	2.6
FCCC+FCCF	Benzene	605.0	1.50	12100.0	8066.7	0.00	0.00	162000	2.6
HF ALK	Benzene	1448.0	1.18	28960.0	24542.4	4.34	0.08	162000	2.6
HFAlkylation Clay	Benzene	22.6	1.24	452.0	364.5	0.05	0.00	162000	2.6
HYDRCRACKING	Benzene	110.0	1.74	2200.0	1264.4	128.75	3.43	162000	2.6
Isomer. Clay	Benzene	14.4	1.20	288.0	240.0	2.50	0.05	162000	2.6
OFF SPEC	Benzene	90.7	1.26	1814.0	1439.7	0.47	0.00	162000	2.6
OFF SPEC Sulfur	Benzene	123.0	1.36	2460.2	1809.0	0.00	0.00	162000	2.6
Phos. Acid Catalyst	Benzene	119.0	0.96	2380.0	2479.2	0.00	0.00	162000	2.6
Process Sludge from Residual Upgrading	Benzene	11.5	1.08	229.2	212.2	73.00	2.60	162000	2.6
Reforming Cata.	Benzene	0.2	2.60	4.0	1.5	5.05	0.65	162000	2.6
Residual Oil Sludge	Benzene	496.8	1.20	9936.0	8280.0	0.00	0.00	162000	2.6
SAAS	Benzene	5.0	1.79	100.0	55.9	0.00	0.00	162000	2.6
SCOT	Benzene	9.3	1.75	186.0	106.3	0.03	0.00	162000	2.6
SCS	Benzene	4.0	1.50	80.0	53.3	0.26	0.03	162000	2.6
Treating Clay from ClayFiltering	Benzene	40.0	1.30	800.0	615.4	3.43	0.07	162000	2.6
UGTS	Benzene	6.3	1.40	125.0	89.3	51.90	0.75	162000	2.6

Aggregate Input Parameters Used in Co-disposal Analysis	Vol. Loaded Waste Density (MT/cu.m)	50-th Perc. 20-yr Waste Vol. (CU.M.)	Volume Weighted Mean Cw (mg/kg)	Volume Weighted Mean TCLP (mg/l)	90-th Perc. of the 90-th Perc. Waste Unit Areas (sq.m.)	50-th Perc of the 50-th Perc. Waste Unit Depths (m)
Waste and Waste Unit Parameters	1.26	54556.56	5.99	0.14	162000.00	2.60

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Table D.6 Co-disposal Data for Two High-End Parameter Analysis, TC Capped Benzene in Off-site Landfills with Hydrocracking

Waste Stream Name	constituent	50-th Percentile Annual Waste Mass (MT)	Waste Density (MT/cu.m)	50-th Percentile 20-yr Waste Mass (MT)	50-th Percentile 20-yr Waste Vol. (CU.M.)	Mean Cw (mg/kg)	Mean TCLP (mg/l)	90-th Percentile Area (sq.m.)	50-th Percentile Depth (m)
Claus	Benzene	30.0	2.50	600.0	240.0	0.00	0.00	162000	2.6
COTS	Benzene	29.8	1.52	595.0	391.4	58.73	0.50	162000	2.6
CSO	Benzene	184.5	1.40	3690.0	2635.7	1.20	0.06	162000	2.6
Desalting Sludge	Benzene	2.1	1.10	41.2	37.5	93.00	0.50	162000	2.6
Extraction clay	Benzene	88.4	1.00	1768.0	1768.0	2.50	0.05	162000	2.6
FCCC+FCCF	Benzene	605.0	1.50	12100.0	8066.7	0.00	0.00	162000	2.6
HF ALK	Benzene	1448.0	1.18	28960.0	24542.4	4.34	0.08	162000	2.6
HFAlkylation Clay	Benzene	22.6	1.24	452.0	364.5	0.05	0.00	162000	2.6
HYDRCRACKING	Benzene	110.0	1.74	2200.0	1264.4	128.75	0.50	162000	2.6
Isomer. Clay	Benzene	14.4	1.20	288.0	240.0	2.50	0.05	162000	2.6
OFF SPEC	Benzene	90.7	1.26	1814.0	1439.7	0.47	0.00	162000	2.6
OFF SPEC Sulfur	Benzene	123.0	1.36	2460.2	1809.0	0.00	0.00	162000	2.6
Phos. Acid Catalyst	Benzene	119.0	0.96	2380.0	2479.2	0.00	0.00	162000	2.6
Process Sludge from Residual Upgrading	Benzene	11.5	1.08	229.2	212.2	73.00	0.50	162000	2.6
Reforming Cata.	Benzene	0.2	2.60	4.0	1.5	5.05	0.50	162000	2.6
Residual Oil Sludge	Benzene	496.8	1.20	9936.0	8280.0	0.00	0.00	162000	2.6
SAAS	Benzene	5.0	1.79	100.0	55.9	0.00	0.00	162000	2.6
SCOT	Benzene	9.3	1.75	186.0	106.3	0.03	0.00	162000	2.6
SCS	Benzene	4.0	1.50	80.0	53.3	0.26	0.03	162000	2.6
Treating Clay from ClayFiltering	Benzene	40.0	1.30	800.0	615.4	3.43	0.07	162000	2.6
UGTS	Benzene	6.3	1.40	125.0	89.3	51.90	0.50	162000	2.6

Aggregate Input Parameters Used in Co-disposal Analysis	Vol. Loaded Waste Density (MT/cu.m)	50-th Perc. 20-yr Waste Vol. (CU.M.)	Volume Weighted Mean Cw (mg/kg)	Volume Weighted Mean TCLP (mg/l)	90-th Perc. of the 90-th Perc. Waste Unit Areas (sq.m.)	50-th Perc of the 50-th Perc. Waste Unit Depths (m)
Waste and Waste Unit Parameters	1.26	54692.28	5.98	0.06	162000.00	2.60

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Table D.7 Co-disposal Data for Two High-End Parameter Analysis, Arsenic in Off-site Landfills without Hydrocracking

Waste Stream Name	constituent	50-th Percentile Annual Waste Mass (MT)	Waste Density (MT/cu.m)	50-th Percentile 20-yr Waste Mass (MT)	50-th Percentile 20-yr Waste Vol. (CU.M.)	Mean Cw (mg/kg)	Mean TCLP (mg/l)	90-th Percentile Area (sq.m.)	50-th Percentile Depth (m)
Claus	Arsenic	30.0	2.50	600.0	240.0	9.30	0.00	162000	2.6
COTS	Arsenic	29.8	1.52	595.0	391.4	14.80	0.00	162000	2.6
CSO	Arsenic	184.5	1.40	3690.0	2635.7	2.90	0.00	162000	2.6
Desalting Sludge	Arsenic	2.1	1.10	41.2	37.5	22.00	0.00	162000	2.6
Extraction clay	Arsenic	88.4	1.00	1768.0	1768.0	0.00	0.00	162000	2.6
FCCC+FCCF	Arsenic	605.0	1.50	12100.0	8066.7	4.40	0.00	162000	2.6
HF ALK	Arsenic	1448.0	1.18	28960.0	24542.4	3.40	0.00	162000	2.6
HF Alkylation Clay	Arsenic	22.6	1.24	452.0	364.5	12.30	0.00	162000	2.6
Isomer. Clay	Arsenic	14.4	1.20	288.0	240.0	0.00	0.00	162000	2.6
OFF SPEC	Arsenic	90.7	1.26	1814.0	1439.7	0.00	0.00	162000	2.6
Phos. Acid Catalyst	Arsenic	119.0	0.96	2380.0	2479.2	72.10	0.12	162000	2.6
Process Sludge from Residual Upgrading	Arsenic	11.5	1.08	229.2	212.2	43.00	0.00	162000	2.6
Reforming Cata.	Arsenic	0.2	2.60	4.0	1.5	19.30	0.00	162000	2.6
Residual Oil Sludge	Arsenic	496.8	1.20	9936.0	8280.0	2.00	0.00	162000	2.6
SAAS	Arsenic	5.0	1.79	100.0	55.9	2.40	0.00	162000	2.6
SCOT	Arsenic	9.3	1.75	186.0	106.3	19.30	0.00	162000	2.6
SCS	Arsenic	4.0	1.50	80.0	53.3	34.40	0.14	162000	2.6
Treating Clay from ClayFiltering	Arsenic	40.0	1.30	800.0	615.4	8.55	0.07	162000	2.6
UGTS	Arsenic	6.3	1.40	125.0	89.3	97.30	0.00	162000	2.6
OFF SPEC Sulfur	Arsenic	123.0	1.36	2460.2	1809.0	0.00	0.00	162000	2.6

Aggregate Input Parameters Used in Co-disposal Analysis	Vol. Loaded Waste Density (MT/cu.m)	50-th Perc. Waste Vol. (CU.M.)	Volume Weighted Mean Cw (mg/kg)	Volume Weighted Mean TCLP (mg/l)	90-th Area 90-th Perc. of the 90-th Perc. Areas (sq.m.)	50-th Depth 50-th Perc of the 50-th Perc. Depths (m)
Waste and Waste Unit Parameters	1.23	43390.25	6.78	0.007	162000.00	2.60

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Table D.8 Co-disposal Data for Two High-End Parameter Analysis, Benzene in Off-site Landfills without Hydrocracking

Waste Stream Name	constituent	50-th Percentile Annual Waste Mass (MT)	Waste Density (MT/cu.m)	50-th Percentile 20-yr Waste Mass (MT)	50-th Percentile 20-yr Waste Vol. (CU.M.)	Mean Cw (mg/kg)	Mean TCLP (mg/l)	90-th Percentile Area (sq.m.)	50-th Percentile Depth (m)
Claus	Benzene	30.0	2.50	600.0	240.0	0.00	0.00	162000	2.6
COTS	Benzene	29.8	1.52	595.0	391.4	58.73	0.68	162000	2.6
CSO	Benzene	184.5	1.40	3690.0	2635.7	1.20	0.06	162000	2.6
Desalting Sludge	Benzene	2.1	1.10	41.2	37.5	93.00	2.39	162000	2.6
Extraction clay	Benzene	88.4	1.00	1768.0	1768.0	2.50	0.05	162000	2.6
FCCC+FCCF	Benzene	605.0	1.50	12100.0	8066.7	0.00	0.00	162000	2.6
HF ALK	Benzene	1448.0	1.18	28960.0	24542.4	4.34	0.08	162000	2.6
HFAlkylation Clay	Benzene	22.6	1.24	452.0	364.5	0.05	0.00	162000	2.6
Isomer. Clay	Benzene	14.4	1.20	288.0	240.0	2.50	0.05	162000	2.6
OFF SPEC	Benzene	90.7	1.26	1814.0	1439.7	0.47	0.00	162000	2.6
OFF SPEC Sulfur	Benzene	123.0	1.36	2460.2	1809.0	0.00	0.00	162000	2.6
Phos. Acid Catalyst	Benzene	119.0	0.96	2380.0	2479.2	0.00	0.00	162000	2.6
Process Sludge from Residual Upgrading	Benzene	11.5	1.08	229.2	212.2	73.00	2.60	162000	2.6
Reforming Cata.	Benzene	0.2	2.60	4.0	1.5	5.05	0.65	162000	2.6
Residual Oil Sludge	Benzene	496.8	1.20	9936.0	8280.0	0.00	0.00	162000	2.6
SAAS	Benzene	5.0	1.79	100.0	55.9	0.00	0.00	162000	2.6
SCOT	Benzene	9.3	1.75	186.0	106.3	0.03	0.00	162000	2.6
SCS	Benzene	4.0	1.50	80.0	53.3	0.26	0.03	162000	2.6
Treating Clay from ClayFiltering	Benzene	40.0	1.30	800.0	615.4	3.43	0.07	162000	2.6
UGTS	Benzene	6.3	1.40	125.0	89.3	51.90	0.75	162000	2.6

Aggregate Input Parameters Used in Co-disposal Analysis	Vol. Loaded Waste Density (MT/cu.m)	50-th Perc. Waste Vol. (CU.M.)	Volume Weighted Mean Cw (mg/kg)	Volume Weighted Mean TCLP (mg/l)	90-th Area 90-th Perc. of the 90-th Perc. Areas (sq.m.)	50-th Depth 50-th Perc of the 50-th Perc. Depths (m)
Waste and Waste Unit Parameters	1.25	53292.19	3.08	0.059	162000.00	2.60

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Table D.9 Co-disposal Data for Two High-End Parameter Analysis, TC Capped Benzene without Hydrocracking in Off-site Landfills

Waste Stream Name	constituent	50-th Percentile Annual Waste Mass (MT)	Waste Density (MT/cu.m)	50-th Percentile 20-yr Waste Mass (MT)	50-th Percentile 20-yr Waste Vol. (CU.M.)	Mean Cw (mg/kg)	Mean TCLP (mg/l)	90-th Percentile Area (sq.m.)	50-th Percentile Depth (m)
Claus	Benzene	30.0	2.50	600.0	240.0	0.00	0.00	162000	2.6
COTS	Benzene	29.8	1.52	595.0	391.4	58.73	0.50	162000	2.6
CSO	Benzene	184.5	1.40	3690.0	2635.7	1.20	0.06	162000	2.6
Desalting Sludge	Benzene	2.1	1.10	41.2	37.5	93.00	0.50	162000	2.6
Extraction clay	Benzene	88.4	1.00	1768.0	1768.0	2.50	0.05	162000	2.6
FCCC+FCCF	Benzene	605.0	1.50	12100.0	8066.7	0.00	0.00	162000	2.6
HF ALK	Benzene	1448.0	1.18	28960.0	24542.4	4.34	0.08	162000	2.6
HFAlkylation Clay	Benzene	22.6	1.24	452.0	364.5	0.05	0.00	162000	2.6
Isomer. Clay	Benzene	14.4	1.20	288.0	240.0	2.50	0.05	162000	2.6
OFF SPEC	Benzene	90.7	1.26	1814.0	1439.7	0.47	0.00	162000	2.6
OFF SPEC Sulfur	Benzene	123.0	1.36	2460.2	1809.0	0.00	0.00	162000	2.6
Phos. Acid Catalyst	Benzene	119.0	0.96	2380.0	2479.2	0.00	0.00	162000	2.6
Process Sludge from Residual Upgrading	Benzene	11.5	1.08	229.2	212.2	73.00	0.50	162000	2.6
Reforming Cata.	Benzene	0.2	2.60	4.0	1.5	5.05	0.50	162000	2.6
Residual Oil Sludge	Benzene	496.8	1.20	9936.0	8280.0	0.00	0.00	162000	2.6
SAAS	Benzene	5.0	1.79	100.0	55.9	0.00	0.00	162000	2.6
SCOT	Benzene	9.3	1.75	186.0	106.3	0.03	0.00	162000	2.6
SCS	Benzene	4.0	1.50	80.0	53.3	0.26	0.03	162000	2.6
Treating Clay from ClayFiltering	Benzene	40.0	1.30	800.0	615.4	3.43	0.07	162000	2.6
UGTS	Benzene	6.3	1.40	125.0	89.3	51.90	0.50	162000	2.6

Aggregate Input Parameters Used in Co-disposal Analysis	Vol. Loaded Waste Density (MT/cu.m)	50-th Perc. Waste Vol. (CU.M.)	Volume Weighted Mean Cw (mg/kg)	Volume Weighted Mean TCLP (mg/l)	90-th Area 90-th Perc. of the 90-th Perc. Areas (sq.m.)	50-th Depth 50-th Perc of the 50-th Perc. Depths (m)
Waste and Waste Unit Parameters	1.25	53427.91	3.07	0.05	162000.00	2.60