

OÜ Inseneribüroo STEIGER

**Murese kruusamaardla
Murese II kruusakarjääri
markšeiderimõõdistamise seletuskiri**
(varu seisuga 04.11.2020)

Töö nr 20/3229

Tallinn 2020

Kinnitan

Erki Vaguri
Juhatuse liige

.....

Kaevandatud maavaravaru arvutas:

Peeter Koll
Markšeider, tase 6
Kutsetunnistus nr 139686

.....

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GRAAFILISED LISAD

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1 SISSEJUHATUS

Murese II kruusakarjääri (VILM-041) mäeeraldis (7,99 ha) ja selle teenindusmaa (15,46 ha) asuvad Viljandi maakonnas Viljandi vallas. Maavara kaevandamisloa omanik on OÜ Raidano, kaevandaja on Sakala Teed OÜ. Maavara kaevandamise luba kehtib 14.07.2008 – 14.07.2023. Murese II kruusakarjääri mäeeraldisega on seotud Murese kruusamaardla ehituskruusa aktiivse tarbevaru plokid 5 ja 6.

Markšeiderimõõdistamise ja kaevandatud maavaravaru arvutuse ning sellest lähtuvalt jääkvaru arvutuse Murese II mäeeraldisel tegi OÜ Inseneribüroo STEIGER kaevandaja Sakala Teed OÜ tellimusel. Kaevandatud mahu arvutuse aluseks on 04.11.2020 markšeiderimõõdistus ning maavara kaevandamise loa plaan. Välitööd tegi geodeet Arles Tehu, hilisemad kameraaltööd tegid markšeider Peeter Koll ja joonestaja Kaja Paat. Aruande koostamisel on kasutatud maavara kaevandamise loa taotluse materjale (OÜ J.Viru Markšeideribüroo, 2008).

Mõõdistati L-EST 97 tasapinnaliste ristkoordinaatide süsteemis, kõrgused EH2000 süsteemis. EH2000 ja Balti 77 kõrguste erinevus Murese II kruusakarjääri mäeeraldisel piires on keskmiselt 0,18 m. Lähtekoordinaadid ja kõrgused - Trimble VRS Now püsijaamade võrk. GNSS vastuvõtuseade kontrolliti riikliku geodeetilise põhivõrgu tihendusvõrgu punktil Pirmastu99 (7599). Kontrollmõõdistamisel saadud tulemuste erinevus geodeetiliste punktide andmekogus esitatud punktide suhtes jäi Maapõueseaduses lubatud piiridesse (Lisa 2).

Käesolevas seletuskirjas esitatakse Murese II kruusakarjääris 14.07.2008 – 04.11.2020. a kaevandatud maavaravaru ning selle alusel tehtud jääkvaru arvutuse materjalid. Lisatud on mäetööde plaan (joonis 1/2) ja mäeeraldisel plaani geoloogilised läbilõiked (joonis 2/2).

Markšeiderimõõdistamine ja varu arvutus on tehtud vastavuses Maapõueseadusele ja keskkonnaministri 05.04.2011. a määrusele nr 22 "Keskkonnatasu deklaratsiooni vormid ja nende täitmise ning maavaravaru kaevandamise mahu aruande esitamise kord" ja majandus- ja taristuministri 03.05.2019. a määrusele nr 32 "Markšeiderimõõdistuse täpsustatud nõuded ja kord".

2 MÄEERALDISE ÜLDISELOOMUSTUS JA UURITUS

2.1 Karjääri asukoht

Murese II kruusakarjäär, mäeeraldise teenindusmaa pindalaga 15,46 ha ja mäeeraldis pindalaga 7,99 ha, asub Viljandimaal Viljandi vallas Raassilla külas Muresepõllu kinnistul (79701:004:0069). Mäeeraldisest vahetult loodesse jääb Raassilla-Panni kruuskattega tee. Mäeeraldist läbib kõrgepinge elektriliin (KP3270352), kaitsevööndi laiusena 25m liini teljest. Murese kruusakarjäär ei jää Natura 2000 võrgustiku ega looduskaitse alale. Lähim majapidamine asub mäeeraldise piirist ~250 m kaugusel edelas.

2.2 Geoloogiline uuritus

2000. aastal tegi Murese II kruusakarjääri alal geoloogilise uuringu OÜ J.Viru Markšeideribüroo. Uuringu käigus viidi läbi geodeetiline mõõdistamine, rajati 7 kaevandit üldmetraažiga 34,3 m. Kasulikust kihist võeti 7 proovi, milles määrati lõimis, füüsikalise-mehhaanilised omadused, puiste mahumass ja kruusaterade kivimiline koostis. Kasulik kiht koosneb kruusast (keskmiselt 52,4 %), savi ja tolmuosakeste sisaldus on 2,4 % ning materjal vastas ehituskruusale esitatavatele nõuetele. Ehituskruusa varu hinnati üldpindalal 8,15 ha 359 tuh.m³ aktiivset tarbevaru (pindala 8,01 ha) ja 6 tuh.m³ passiivset tarbevaru (pindala 0,14 ha) elektriliini postide kaitsetsoonis.

3 KAEVANDATUD MAAVARAVARU JA JÄÄKVARU ARVUTUS

Varu mudelarvutused on tehtud arvutiprogrammiga Bentley PowerCivil V8i (litsents: 70000661800020) triangulatsiooni interpoleerimismeetodiga. Varuarvutuse andmed on toodud lisas 1.

3.1 Ajavahemikul 14.07.2008 – 04.11.2020 kaevandatud maavaravaru

Kaevandatud maavaravaru arvutamisel on kasutatud 04.11.2020 markšeiderimõõdistamise ja maavara kaevandamise loa taotluse materjale. Paljandatud alal on katendi maht maha arvutatud katendi keskmise paksuse (0,5 m) ja paljandatud ala pindala korrutisena.

Vastavalt arvutustele on ajavahemikul 14.07.2008 – 04.11.2020 Murese II kruusakarjääri mäeeraldiselt kaevandatud kokku 108,4 tuh m³. plokkide lõikes jaguneb kaevandatud maht järgnevalt:

- Aktiivse tarbevaru **plokist 5** täiteliiv **102,6 tuh m³**
- Aktiivse tarbevaru **plokist 6** ehitusliiv **5,8 tuh m³**

Ajavahemikul 14.07.2008 – 04.11.2020 on mäeeraldisel piiripunkt 79 juures kaevandatud Murese II mäeeraldisel lamamist sügavamalt, plokist 13 ehituskruusa prognoosvaru 49 m³.

3.2 Mäeeraldisel jääkvaru ja kaevandatav varu seisuga 04.11.2020

Markšeiderimõõdistuse põhjal arvutatud jääkvaru ja kaevandatav jääkvaru, seisuga 04.11.2020, ning keskkonnaregistri maardlate nimistu digitaalses ära kirjas toodud bilansilise jääkvaru võrdlus (viimane varu muutus 30.09.2020. a) on toodud tabelis 3.1.

Tabel 3.1 Jääkvarud seisuga 04.11.2020. a.

Plokk	Kasutusala	Jääkvaru seisuga 04.11.2020, tuh m ³	Kaevandatav jääkvaru seisuga 04.11.2020, tuh m ³	Bilansiline jääkvaru seisuga 30.09.2020, tuh m ³	Tegeliku ja bilansilise jääkvaru erinevus, tuh m ³
Plokk 5 aT	Ehituskruus	233,4	234,6	253,227	-19,827
Plokk 6 aT	Ehituskruus	17,2		3,6	13,6
Kokku				256,827	-6,227

4 KASUTATUD KIRJANDUS

1. Keskkonnaministri 05. aprilli 2011. a määrus nr 22 "Keskkonnatasu deklaratsiooni vormid ja nende täitmise ning maavaravaru kaevandamise mahu aruande esitamise kord";
2. Majandus- ja taristuministri 03. mai 2019. a määrus nr 32 "Markšeiderimõõdistuse täpsustatud nõuded ja kord".
3. Aruanne "Murese karjäärivälja geoloogiline uuring" (varu seisuga 01.01.2000.a.), OÜ J.Viru Markšeideribüroo, 2000

LISA 1 - TOPOGRAAFILISE MÕÕDISTAMISE SELETUSKIRI

Töö nr:	20/3229
Objekt:	Murese II kruusakarjäär
Objekti asukoht:	Viljandi maakond, Viljandi vald
Katastriüksuse nimi ja tunnus:	Muresepõllu (79701:004:0069)
Mäeeraldise pindala:	7,99 ha
Mäeeraldise teenindusmaa pindala:	15,46 ha
Töö tellija:	OÜ Sakala Teed
Töö läbiviijad:	Arles Tehu
Kameraaltööd:	Peeter Koll, Kaja Paat
Töö teostamise aeg:	
- Välitöö	04.11.2020
- Kameraaltöö	Detsember 2020
Mõõdistamise eesmärk:	Situatsiooni mõõdistamine ja mäetööde seisu fikseerimine
Koordinaatide süsteem:	L-Est 97, kõrgused EH2000 süsteemis
Mõõdistamisalus:	Trimble VRS Now püsijaamade võrk
Kontrollpunkt:	Riiklik põhivõrgupunkt: Pirmastu99 (7599)
Mõõdistamisviis:	GNSS
Kasutatud instrumendid:	Trimble R8S GNSS süsteem horisontaalne mõõtetäpsus ±10 mm +1 mm/km, vertikaalne mõõtetäpsus ±20 mm +1 mm/km

Kontrollpunkti nr	N	E	Z (EH2000)	Mõõdistamisaeg
Pirmastu99	6464607,118	598065,682	77,453	
Kontroll 1	6464607,108	598065,667	77,464	04.11.2020
Erinevus	-0,01	-0,015	0,011	
Kontroll 2	6464607,126	598065,667	77,44	04.11.2020
Erinevus	0,008	-0,015	-0,013	

Plaani mõõtkava:	M 1:2000
Arvuti tarkvara:	Bentley PowerCivil V8i (litsents: 70000661800020)

Peeter Koll
Markšeider
04.02.2021

LISA 2 – MÕÕDISTUSE TÄRKANDMED

Nr, X, Y, Z		
1,6457292.953,601128.468,86.178,ts1	73,6457226.436,601002.475,85.860,va st	145,6457167.122,600905.814,81.452,va
2,6457297.443,601128.332,86.164,ts2	74,6457218.483,601005.566,85.686,va	146,6457160.253,600905.162,81.528,va
3,6457296.463,601109.589,87.078,ts2	75,6457220.434,601008.892,87.561,vu st	147,6457154.477,600903.158,81.606,va
4,6457291.993,601110.090,87.112,ts1	76,6457223.875,601012.797,87.957,vu	148,6457152.015,600906.346,81.571,va
5,6457289.330,601089.813,88.020,ts1	77,6457226.443,601011.672,88.307,vu	149,6457152.328,600910.966,81.491,va
6,6457294.846,601089.140,87.963,ts2	78,6457226.644,601006.588,87.840,vu	150,6457156.003,600915.122,81.465,va
7,6457291.279,601071.422,88.428,ts2	79,6457223.468,601008.864,88.027,vu	151,6457155.701,600918.741,81.295,va
8,6457286.002,601072.283,88.468,ts1	80,6457217.165,601005.946,85.402,vu st	152,6457152.309,600926.402,81.363,va
9,6457282.415,601060.004,88.434,ts1	81,6457208.976,600994.796,85.626,vu	153,6457149.652,600923.142,82.879,vu st
10,6457287.415,601058.253,88.388,ts2	82,6457201.933,600980.757,85.790,vu	154,6457153.707,600916.859,82.810,vu
11,6457281.259,601041.902,87.463,ts2	83,6457201.948,600980.755,85.802,vu	155,6457149.913,600913.029,83.062,vu
12,6457276.560,601043.199,87.406,ts1	84,6457200.579,600973.647,85.976,vu	156,6457146.860,600912.993,83.274,va st
13,6457270.839,601030.183,86.660,ts1	85,6457197.684,600969.450,83.794,vu st	157,6457145.168,600916.892,83.331,va
14,6457275.012,601028.039,86.728,ts2	86,6457200.140,600964.940,83.953,vu	158,6457149.109,600922.283,82.925,va
15,6457265.084,601011.752,86.081,ts2	87,6457200.102,600956.390,84.369,vu	159,6457152.419,600926.494,81.314,va st
16,6457258.178,600999.666,85.658,ts2	88,6457200.537,600955.584,84.481,va st	160,6457151.192,600936.543,81.161,va
18,6457266.372,601024.186,86.374,ts1	89,6457202.346,600952.877,84.498,va	161,6457146.384,600946.384,81.020,va
19,6457289.876,601021.540,85.777,ts1	90,6457206.288,600951.889,84.861,va	162,6457142.029,600949.411,81.259,va
20,6457254.442,601023.026,85.190,ts1	91,6457210.221,600958.277,84.824,va	163,6457128.676,600954.479,81.260,va
21,6457248.262,601028.591,84.661,ts1	92,6457207.801,600962.671,84.428,va	164,6457122.976,600955.029,81.357,va
22,6457245.086,601026.114,84.841,ts1 st	93,6457204.157,600963.145,84.362,va	165,6457118.604,600953.003,81.461,va
23,6457251.050,601017.827,85.442,ts1	94,6457202.513,600964.869,84.150,va	166,6457115.619,600948.736,81.601,va
24,6457255.903,601011.219,85.799,ts1	95,6457202.739,600969.021,84.194,va	167,6457115.511,600946.764,81.743,va
25,6457256.696,601005.567,85.813,ts1	96,6457199.433,600969.623,83.916,va	168,6457119.943,600944.498,83.360,va st
26,6457255.216,601002.169,85.717,ts1	97,6457199.083,600954.004,85.775,vu st	169,6457124.142,600945.842,83.660,va
27,6457244.981,600984.446,85.491,ts1	98,6457203.022,600949.761,86.153,vu	170,6457127.826,600949.636,83.575,va
28,6457248.414,600982.216,85.383,ts2	99,6457207.743,600948.841,86.503,vu	171,6457128.024,600950.279,83.534,vu st
29,6457240.911,600968.904,85.562,ts2	100,6457212.519,600957.982,85.997,vu	172,6457125.809,600951.733,83.707,vu
30,6457237.497,600970.641,85.529,ts1	101,6457211.623,600960.692,86.426,vu	173,6457121.088,600950.054,83.757,vu
31,6457230.003,600955.768,86.365,ts1	102,6457213.845,600958.628,85.359,va st	174,6457118.852,600947.488,83.591,vu
32,6457233.040,600953.799,86.267,ts2	103,6457216.261,600967.710,84.614,va	175,6457119.420,600945.549,83.358,vu
33,6457225.469,600939.089,87.058,ts2	104,6457221.215,600979.306,84.519,va	176,6457113.142,600946.179,81.682,va st
34,6457222.026,600940.483,87.232,ts1	105,6457226.869,600993.475,84.409,va	177,6457104.895,600952.355,81.641,va
35,6457214.068,600925.179,87.715,ts1	106,6457229.801,601001.410,84.310,va	178,6457101.594,600956.099,81.517,va
36,6457217.301,600923.441,87.564,ts2	107,6457234.065,601010.888,84.515,va	179,6457099.636,600960.840,81.431,va
37,6457209.990,600909.552,87.521,ts2	108,6457234.644,601014.580,84.576,va	180,6457096.266,600963.633,81.213,va
38,6457206.714,600911.108,87.673,ts1	109,6457231.564,601017.687,84.306,va	181,6457080.275,600972.224,81.092,va
39,6457197.473,600893.688,87.355,ts1	110,6457226.736,601018.651,84.100,va	182,6457069.636,600977.766,81.022,va
40,6457200.602,600892.044,87.268,ts2	111,6457225.814,601019.010,84.020,vu st	183,6457064.266,600981.251,80.971,va
41,6457191.041,600874.210,86.737,ts2	112,6457232.932,601020.873,84.447,vu	184,6457064.347,600983.755,80.867,va
42,6457187.912,600875.357,86.743,ts1	113,6457238.335,601024.045,84.466,vu	185,6457067.229,600988.004,80.890,va
43,6457178.670,600858.233,86.478,ts1	114,6457239.855,601028.181,84.481,vu	186,6457066.879,600991.579,80.893,va
44,6457181.576,600856.839,86.466,ts2	115,6457238.411,601033.881,84.341,vu	187,6457065.065,600994.361,80.993,va
45,6457172.366,600840.142,86.255,ts2	116,6457236.529,601037.913,83.904,vu	188,6457064.070,600992.460,81.503,vu st
46,6457169.435,600841.612,86.237,ts1	117,6457234.231,601041.818,83.332,vu	189,6457065.859,600990.646,81.575,vu
47,6457159.542,600824.241,85.914,ts1	118,6457227.537,601051.144,82.643,vu	190,6457066.221,600988.610,81.673,vu
48,6457162.469,600823.000,85.940,ts2	119,6457225.516,601054.892,82.399,vu	191,6457064.248,600985.339,81.698,vu
49,6457152.092,600805.762,85.715,ts2	120,6457223.595,601057.309,82.085,vu	192,6457063.427,600985.006,81.726,va st
50,6457149.311,600807.281,85.703,ts1	121,6457216.316,601057.468,81.702,vu	194,6457063.799,600990.020,81.432,va
51,6457138.272,600790.165,85.687,ts1	122,6457213.847,601055.609,81.274,vu	195,6457063.810,600991.953,81.428,va
52,6457141.309,600788.578,85.690,ts2	123,6457213.377,601053.935,80.874,va st	196,6457064.555,600995.559,81.132,va st
53,6457130.447,600771.774,85.730,ts2	124,6457219.348,601054.142,80.783,va	197,6457064.802,601006.380,80.592,va
54,6457127.579,600773.288,85.738,ts1	125,6457225.576,601046.464,80.615,va	198,6457066.353,601014.370,80.771,va
55,6457116.259,600756.412,85.992,ts1	126,6457227.755,601040.959,79.970,va	199,6457080.439,601019.373,80.183,va
56,6457119.287,600754.675,86.022,ts2	127,6457232.974,601029.288,79.496,va	200,6457078.474,601029.216,79.635,va
57,6457108.406,600738.201,86.466,ts2	128,6457226.391,601025.993,79.927,va	201,6457073.337,601036.440,79.067,va
58,6457105.036,600739.605,86.442,ts1	129,6457221.484,601022.694,80.223,va	202,6457063.080,601043.800,78.787,va
59,6457096.125,600726.187,86.878,ts1	130,6457215.542,601020.784,80.106,va	203,6457071.610,601051.275,79.159,va
60,6457098.698,600723.679,86.945,ts2	131,6457212.570,601017.059,79.772,va	204,6457083.878,601063.362,79.278,va
61,6457093.239,600726.661,87.217,aed	132,6457210.052,601015.700,79.823,va	205,6457092.634,601071.681,79.276,va
62,6457113.877,600757.742,86.104,aed	133,6457208.767,601014.737,80.302,va	206,6457097.264,601073.008,79.136,va
63,6457133.543,600788.121,85.509,aed	134,6457204.597,601005.698,80.034,va	207,6457101.942,601085.791,79.491,va
64,6457150.859,600814.991,85.529,aed	135,6457198.044,600992.930,80.034,va	208,6457109.302,601098.157,79.733,va
65,6457163.320,600835.114,86.050,aed	136,6457192.907,600979.811,80.225,va	209,6457113.451,601102.097,79.526,va
66,6457199.782,600972.288,85.798,vu st	137,6457191.478,600969.155,80.362,va	210,6457115.468,601102.692,79.535,va
67,6457204.936,600969.969,86.089,vu	138,6457195.580,600964.160,80.598,va	211,6457117.084,601105.845,79.890,vu st
68,6457205.256,600965.357,86.250,vu	139,6457192.179,600955.247,80.583,va	212,6457114.068,601114.864,79.604,vu
69,6457211.632,600960.580,86.266,vu	140,6457191.248,600948.343,80.715,va	213,6457115.021,601122.976,80.016,vu
70,6457218.973,600980.589,86.013,vu	141,6457190.682,600943.451,80.827,va	214,6457119.432,601123.833,80.070,vu
71,6457223.866,600996.303,85.889,vu	142,6457181.258,600932.362,81.028,va	215,6457122.384,601119.081,79.986,vu
72,6457226.617,601002.419,85.522,vu	143,6457177.855,600929.284,81.040,va	216,6457131.595,601119.626,79.378,vu
	144,6457171.416,600913.658,81.554,va	217,6457135.855,601115.349,79.535,vu

218,6457139.001,601108.844,79.401,vu	285,6457068.879,601145.268,79.090,va	360,6457055.519,601007.687,86.507,vu
219,6457140.749,601107.456,80.012,vu	286,6457066.567,601127.191,87.335,vu st	361,6457059.428,601013.710,83.791,va st
220,6457150.773,601109.589,80.233,vu	287,6457069.974,601121.595,86.929,vu	362,6457051.485,601016.806,83.665,va
221,6457154.294,601112.465,80.416,vu	288,6457079.100,601117.426,86.704,vu	363,6457043.039,601016.197,84.276,va
222,6457156.186,601118.741,81.015,vu	289,6457091.051,601116.024,86.702,vu	364,6457040.301,601018.013,84.156,va
223,6457160.578,601114.965,80.979,vu	290,6457097.349,601110.564,86.336,vu	365,6457046.846,601027.716,83.889,va
224,6457166.320,601110.907,80.572,vu	291,6457102.416,601103.246,85.948,vu	366,6457049.472,601031.588,83.840,va
225,6457173.210,601110.717,80.811,vu	292,6457092.087,601098.478,86.816,vu	367,6457050.649,601031.983,83.800,vu st
226,6457176.103,601116.207,80.995,vu	293,6457089.700,601090.267,86.715,vu	368,6457055.570,601029.289,83.873,vu
227,6457175.613,601112.447,80.997,vu	294,6457091.240,601083.839,86.348,vu	369,6457059.203,601029.659,83.968,vu
228,6457174.452,601124.284,81.140,vu	295,6457088.610,601081.350,86.262,vu	370,6457059.744,601027.851,83.862,va st
229,6457175.164,601130.357,81.034,vu	296,6457088.900,601082.608,86.311,va st	371,6457063.343,601023.787,83.889,va
230,6457173.294,601137.967,81.015,vu	297,6457087.343,601088.752,86.696,va	372,6457068.672,601021.803,84.080,va
231,6457170.850,601141.958,80.928,vu	298,6457090.032,601099.394,86.875,va	373,6457071.564,601021.565,83.904,va
232,6457167.335,601144.158,80.761,vu	299,6457094.827,601103.610,86.697,va	374,6457071.917,601020.578,83.878,vu st
233,6457163.670,601145.642,80.731,vu	300,6457092.050,601108.400,86.834,va	375,6457068.407,601020.259,84.420,vu
234,6457164.490,601149.434,80.738,vu	301,6457086.353,601109.274,86.981,va	376,6457065.258,601018.238,84.586,vu
235,6457163.182,601152.450,80.702,vu	302,6457076.325,601107.878,86.744,va	377,6457062.556,601017.847,84.171,vu
236,6457164.646,601157.287,80.731,vu	303,6457069.613,601104.795,86.684,va	378,6457062.525,601015.755,83.372,vu
237,6457161.297,601172.319,80.435,vu	304,6457069.813,601101.699,86.744,va	379,6457060.257,601013.004,83.633,vu
238,6457158.558,601178.526,80.372,vu	305,6457072.824,601099.740,86.771,va	380,6457053.227,601021.102,83.935,p
239,6457153.716,601183.645,80.302,vu	306,6457067.940,601096.578,86.824,va	381,6457053.846,601033.492,81.556,va st
240,6457160.263,601183.332,80.520,vu	307,6457062.548,601095.417,86.157,va	382,6457055.019,601035.210,81.472,va
241,6457132.733,601179.601,80.450,vu	308,6457057.129,601084.365,85.268,va	383,6457058.687,601033.393,81.974,va
242,6457128.989,601176.252,80.248,vu	309,6457053.305,601076.412,84.783,va	384,6457056.159,601032.582,81.739,va
243,6457127.011,601176.986,80.301,vu	310,6457051.465,601068.318,84.431,va	385,6457033.712,601014.553,86.131,koor
244,6457136.207,601178.996,80.179,vu	311,6457045.764,601067.237,84.410,va	386,6457027.657,601006.445,85.574,koor
245,6457126.631,601182.743,80.139,vu	312,6457041.404,601060.881,84.367,va	387,6457038.533,600998.897,85.817,koor
246,6457128.609,601184.984,80.426,vu	313,6457042.318,601052.065,84.629,va	388,6457044.888,600997.297,85.980,koor
247,6457130.857,601191.166,80.355,vu	314,6457042.234,601045.309,84.841,va	389,6457048.379,600998.311,86.018,koor
248,6457136.207,601195.504,80.530,vu	315,6457049.004,601042.742,85.099,va	390,6457050.122,600991.417,85.775,koor
249,6457142.299,601196.908,80.812,vu	316,6457052.687,601043.899,84.615,va	391,6457044.555,600977.803,85.536,koor
250,6457146.227,601201.590,80.572,vu	317,6457051.137,601047.415,86.708,vu st	392,6457043.001,600970.800,85.370,koor
251,6457147.915,601208.213,79.202,vu	318,6457055.432,601055.280,86.702,vu	393,6457045.403,600968.113,85.544,koor
252,6457150.021,601212.498,79.204,vu	319,6457061.320,601057.558,86.828,vu	394,6457062.475,600958.439,86.015,koor
253,6457150.004,601214.781,78.122,va st	320,6457071.916,601064.621,86.668,vu	395,6457076.006,600951.243,86.201,koor
254,6457143.921,601209.608,78.336,va	321,6457075.251,601068.603,87.126,vu	396,6457087.440,600944.272,85.752,koor
KP4,6457140.939,601201.884,77.944,va	322,6457080.866,601075.380,88.060,vu	397,6457090.111,600941.690,86.184,koor
KP6,6457132.000,601198.388,77.950,va	323,6457085.691,601081.281,87.852,vu	398,6457089.528,600934.879,85.927,koor
KP7,6457121.818,601184.689,78.087,va	324,6457084.898,601084.587,88.498,vu	399,6457092.430,600932.658,85.799,koor
255,6457122.678,601177.240,78.162,va	325,6457082.519,601091.995,88.418,vu	400,6457095.894,600935.867,85.900,koor
256,6457125.936,601172.820,78.258,va	326,6457090.767,601104.421,88.330,vu	401,6457104.118,600938.124,86.279,koor
257,6457129.949,601172.982,78.229,va	327,6457088.436,601105.065,88.479,vu	402,6457112.832,600934.242,86.094,koor
258,6457139.878,601178.425,78.236,va	328,6457074.692,601104.079,88.126,vu	403,6457118.874,600929.734,86.060,koor
259,6457151.286,601180.050,78.400,va	329,6457075.975,601099.368,88.121,vu	404,6457118.068,600922.001,85.826,koor
260,6457155.944,601170.654,77.658,va	330,6457073.241,601094.451,87.998,vu	405,6457134.694,600912.722,85.905,koor
261,6457158.009,601159.383,77.676,va	331,6457069.448,601089.964,87.762,vu	406,6457137.348,600910.290,86.217,koor
262,6457157.976,601153.529,77.680,va	332,6457063.050,601086.347,86.973,vu	407,6457144.929,600899.874,86.135,koor
263,6457159.347,601149.159,78.042,va	333,6457060.489,601076.363,86.432,vu	408,6457156.059,600894.924,86.113,vu st
264,6457160.635,601141.601,78.420,va	334,6457059.158,601067.937,86.142,vu	409,6457147.097,600899.031,86.059,vu
265,6457167.268,601140.421,78.592,va	335,6457054.735,601056.859,86.811,vu st	410,6457144.388,600902.877,86.188,vu
266,6457170.784,601131.685,78.641,va	336,6457051.339,601049.744,86.565,vu	411,6457141.420,600911.041,86.267,vu
267,6457170.867,601129.697,78.017,va	337,6457048.119,601048.607,87.078,vu	412,6457139.004,600914.695,86.183,vu
268,6457171.083,601121.851,78.048,va	338,6457045.322,601048.345,87.171,vu	413,6457142.551,600928.733,86.394,vu
269,6457172.224,601118.599,78.112,va	339,6457046.802,601046.325,87.334,vu	414,6457139.256,600935.736,86.611,vu
270,6457166.420,601115.180,77.939,va	340,6457050.683,601047.076,86.894,vu	415,6457132.206,600944.124,85.813,vu
271,6457164.226,601120.452,77.532,va	341,6457053.194,601044.182,84.503,vu st	416,6457128.120,600944.453,85.759,vu
272,6457161.031,601124.454,78.179,va	342,6457059.386,601038.132,83.593,vu	417,6457133.895,600943.537,85.564,vu st
273,6457156.971,601123.768,78.290,va	343,6457063.540,601034.518,83.784,vu	418,6457140.907,600944.995,84.467,vu
KP8,6457151.116,601121.917,77.867,va	344,6457066.730,601030.847,84.989,vu	419,6457143.266,600936.160,85.049,vu
KP9,6457149.922,601114.394,78.059,va	345,6457072.281,601024.164,85.004,vu	420,6457144.637,600927.781,85.620,vu
274,6457140.980,601112.451,78.011,va	346,6457070.512,601023.254,85.326,vu	421,6457141.028,600921.839,86.183,vu
275,6457134.772,601121.865,78.039,va	347,6457066.436,601026.494,85.503,vu	422,6457126.674,600941.818,85.869,vu st
276,6457124.619,601122.740,78.166,va	348,6457064.534,601026.701,85.691,vu	423,6457121.080,600938.492,86.291,vu
277,6457119.213,601127.877,78.245,va	349,6457062.094,601029.290,85.459,vu	424,6457113.296,600937.388,86.304,vu
278,6457111.958,601125.172,78.280,va	350,6457063.333,601032.294,84.723,vu	425,6457102.290,600943.344,86.374,vu
279,6457110.643,601114.304,78.457,aval	351,6457061.065,601034.787,83.566,vu	426,6457097.255,600947.747,86.434,vu
e	352,6457055.702,601038.537,83.915,vu	427,6457091.519,600956.163,86.303,vu
280,6457114.400,601108.142,78.452,aval	353,6457052.634,601039.899,85.100,vu	428,6457079.446,600963.259,86.160,vu
e	354,6457050.354,601038.000,85.359,vu	429,6457066.186,600969.865,86.045,vu
281,6457106.751,601117.754,79.063,aval	355,6457046.539,601032.552,86.032,vu	430,6457056.818,600975.684,85.681,vu
e	356,6457040.859,601025.993,86.520,vu	431,6457054.241,600981.204,85.751,vu
282,6457093.799,601127.688,77.874,va st	357,6457034.639,601016.580,86.446,vu	432,6457055.748,600989.222,85.854,vu
283,6457085.970,601131.055,78.108,va	358,6457045.583,601008.431,86.406,vu	433,6457055.158,601003.065,86.357,vu
284,6457077.067,601129.970,79.647,va	359,6457053.517,601011.464,86.213,vu	434,6457083.837,601018.461,79.916,ladu

435,6457097.529,601015.428,79.999,ladu	511,6457208.684,601111.105,78.755,va	588,6457152.906,601206.178,79.350,p
436,6457105.322,601016.748,80.027,ladu	512,6457205.816,601111.450,79.845,a st	589,6457157.609,601200.512,79.926,p
437,6457117.915,601021.072,79.870,ladu	513,6457205.621,601109.749,79.845,a	590,6457184.062,601141.088,77.716,va st
438,6457123.644,601024.306,79.817,ladu	514,6457197.834,601111.108,79.531,a	591,6457191.208,601138.085,78.002,va
439,6457126.225,601029.980,79.825,ladu	515,6457199.251,601114.813,79.746,a	592,6457200.135,601138.043,78.025,va
440,6457120.611,601035.565,79.870,ladu	516,6457202.175,601113.906,79.726,a	593,6457199.770,601139.122,78.266,vu st
441,6457116.913,601044.407,79.737,ladu	517,6457203.340,601116.283,78.854,va	594,6457194.297,601139.457,78.786,vu
442,6457108.064,601040.980,79.714,ladu	518,6457201.480,601117.430,78.000,va	595,6457190.234,601141.041,79.500,vu
443,6457103.289,601045.392,79.841,ladu	519,6457198.032,601120.489,77.596,va	596,6457187.138,601144.053,80.719,vu
444,6457095.716,601049.205,79.663,ladu	520,6457195.729,601113.554,78.060,va	597,6457184.933,601147.449,82.134,vu
445,6457091.550,601049.654,79.595,ladu	521,6457193.210,601107.277,78.188,va	598,6457183.693,601148.370,81.662,vu
446,6457088.884,601047.510,79.689,ladu	522,6457191.766,601108.088,78.036,va	599,6457181.075,601150.950,80.467,vu
447,6457086.099,601040.166,79.787,ladu	523,6457191.305,601113.723,78.273,va	600,6457181.689,601152.366,80.315,vu
448,6457083.730,601028.135,79.711,ladu	524,6457186.848,601122.740,77.911,va	601,6457183.468,601139.259,80.994,vu
449,6457078.289,601032.031,79.560,vu st	525,6457184.985,601134.781,78.067,va	602,6457186.189,601148.522,82.061,vu
450,6457076.255,601034.878,79.474,vu	526,6457182.053,601141.738,77.918,va	603,6457186.910,601147.089,82.019,vu
451,6457079.902,601041.518,79.696,vu	527,6457178.487,601146.908,78.255,va	604,6457187.408,601145.490,80.922,vu
452,6457076.624,601047.697,79.727,vu	528,6457195.665,601155.700,77.979,va	605,6457188.207,601144.202,80.697,vu
453,6457075.212,601050.848,79.449,vu	529,6457173.218,601166.449,77.862,va	606,6457190.649,601141.762,79.577,vu
454,6457073.517,601050.241,79.063,va st	530,6457168.929,601175.133,77.885,va	607,6457192.495,601142.794,78.758,va st
455,6457077.220,601042.629,79.013,va	531,6457166.690,601180.753,77.932,va	608,6457192.251,601150.030,78.290,va
456,6457074.095,601039.633,78.903,va	532,6457169.089,601181.656,78.027,va	609,6457189.072,601153.619,78.202,va
457,6457074.876,601036.153,79.010,va	533,6457170.574,601183.307,79.126,vu st	610,6457184.637,601154.839,78.406,va
458,6457095.819,601057.008,79.544,ladu	534,6457175.896,601178.539,78.673,vu	611,6457180.029,601154.621,78.216,va
459,6457095.689,601052.687,79.658,ladu	535,6457179.933,601176.634,79.031,vu	612,6457178.011,601152.393,78.249,va
460,6457103.568,601047.429,79.850,ladu	536,6457181.104,601170.692,79.116,vu	613,6457179.116,601148.191,78.385,va
461,6457109.476,601044.513,79.721,ladu	537,6457181.910,601163.581,79.305,vu	614,6457181.700,601156.463,78.188,va
462,6457112.649,601044.373,79.684,ladu	538,6457181.945,601157.857,78.882,vu	615,6457193.963,601127.355,77.674,p
463,6457115.083,601047.140,79.669,ladu	539,6457184.369,601157.271,78.550,vu	616,6457207.371,601130.205,78.003,p
464,6457118.594,601054.178,79.730,ladu	540,6457185.262,601154.603,78.709,vu	617,6457215.323,601144.171,78.343,p
465,6457116.656,601061.743,79.638,ladu	541,6457184.036,601155.127,78.080,va st	618,6457204.037,601156.463,78.079,p
466,6457122.024,601071.966,79.863,ladu	542,6457179.221,601158.603,77.907,va	619,6457199.781,601155.623,78.141,vu st
467,6457121.221,601076.301,79.959,ladu	543,6457179.203,601168.112,77.941,va	620,6457193.302,601151.768,78.066,vu
468,6457118.494,601078.438,79.875,ladu	544,6457176.548,601176.402,77.841,va	621,6457188.635,601155.617,78.157,vu
469,6457114.720,601078.417,79.617,ladu	545,6457172.568,601176.471,77.888,va	622,6457189.624,601159.828,78.026,vu
470,6457111.957,601076.640,79.366,ladu	546,6457169.919,601180.502,77.918,va	623,6457192.996,601166.739,78.186,vu
471,6457101.456,601063.581,79.340,ladu	547,6457178.578,601193.801,78.083,va st	624,6457200.797,601169.408,78.311,vu
472,6457097.250,601058.907,79.488,ladu	548,6457172.605,601185.771,78.182,va	625,6457203.228,601166.574,78.028,vu
473,6457112.241,601087.727,79.521,p	549,6457178.913,601194.642,78.178,vu st	626,6457201.937,601161.894,78.252,vu
475,6457127.936,601097.256,79.568,p	551,6457185.657,601186.603,78.135,vu	627,6457199.968,601165.918,77.326,va st
476,6457128.052,601084.974,79.777,p	552,6457191.468,601182.040,77.974,vu	628,6457194.016,601156.260,77.257,va
477,6457140.155,601087.469,80.218,p	553,6457185.166,601177.684,78.513,vu	629,6457192.070,601159.139,77.185,va
478,6457116.921,601100.994,79.465,palts	554,6457183.316,601172.264,79.002,vu	630,6457196.681,601162.303,77.250,va
479,6457130.498,601095.673,79.614,palts	555,6457186.061,601170.858,78.471,vu	631,6457197.309,601165.918,77.248,va
480,6457140.763,601091.375,80.240,palts	556,6457190.059,601169.423,78.094,vu	632,6457201.343,601166.931,77.165,va
481,6457154.740,601103.866,80.434,palts	557,6457190.298,601173.891,78.013,vu	633,6457229.911,601146.395,78.206,p
482,6457164.951,601107.171,80.616,palts	558,6457198.172,601176.453,78.137,vu	634,6457222.662,601132.678,78.254,p
483,6457127.936,601121.401,79.171,vu st	559,6457211.459,601169.976,78.003,vu	635,6457214.865,601165.918,78.843,p
484,6457158.918,601208.341,79.624,vu	560,6457224.357,601163.805,77.942,vu	636,6457230.672,601111.624,78.837,p
485,6457162.675,601202.291,80.474,vu	561,6457238.500,601156.609,78.047,vu	637,6457240.312,601126.768,78.110,p
486,6457168.385,601197.811,80.279,vu	563,6457238.350,601158.445,77.001,va st	638,6457244.804,601142.332,78.072,p
487,6457172.401,601196.786,80.215,vu	564,6457233.008,601160.117,77.035,va	639,6457257.844,601147.430,78.295,va st
488,6457174.045,601195.144,80.129,vu	565,6457221.692,601167.268,76.976,va	640,6457261.810,601139.757,78.344,va
489,6457168.520,601186.572,80.554,vu	566,6457210.671,601171.860,76.988,va	641,6457268.342,601139.180,79.208,va
490,6457163.407,601184.649,80.562,vu	567,6457198.276,601179.201,77.066,va	642,6457275.242,601131.890,79.363,va
491,6457162.963,601180.984,80.382,vu	568,6457196.145,601178.686,77.281,va	643,6457277.853,601118.327,79.349,va
492,6457164.553,601174.789,80.513,vu	569,6457190.662,601176.294,77.508,va	644,6457275.334,601101.767,79.887,va
493,6457169.030,601165.001,80.463,vu	570,6457188.151,601173.248,77.640,va	645,6457273.829,601095.162,80.235,va
494,6457171.473,601155.004,80.707,vu	571,6457189.756,601171.392,77.530,va	646,6457269.346,601095.656,79.970,va
495,6457176.659,601142.832,80.890,vu	572,6457189.068,601171.049,77.479,va	647,6457260.085,601103.830,79.998,va
496,6457180.696,601128.800,80.834,vu	573,6457187.647,601173.516,77.628,va	648,6457254.244,601104.164,80.023,va
497,6457183.238,601118.029,80.907,vu	574,6457189.999,601177.585,77.457,va	649,6457251.413,601090.813,80.043,va
498,6457187.376,601108.727,80.937,vu	575,6457193.581,601180.541,77.292,va	650,6457250.728,601080.887,80.192,va
499,6457189.084,601103.950,80.972,vu	576,6457193.383,601182.459,76.990,va	651,6457251.280,601078.972,80.534,va
500,6457192.167,601102.316,81.000,vu	577,6457182.525,601192.848,76.986,va	652,6457252.812,601078.225,80.932,va
501,6457195.816,601103.457,81.263,vu	578,6457176.950,601197.964,77.043,va	653,6457254.924,601077.259,80.820,va
502,6457198.821,601108.654,81.108,vu	579,6457174.757,601201.787,77.002,va	654,6457256.312,601075.885,80.502,va
503,6457204.034,601108.138,80.837,vu	580,6457173.189,601202.975,77.458,va	655,6457262.820,601069.490,80.386,va
504,6457205.828,601106.622,80.536,vu	581,6457165.063,601208.063,77.455,va	656,6457266.642,601068.576,80.657,va
505,6457203.627,601103.220,80.814,vu	582,6457156.153,601214.455,77.558,va	657,6457271.622,601068.624,83.128,vu st
506,6457206.001,601098.179,81.174,vu	583,6457150.015,601216.808,77.421,va	658,6457268.901,601072.394,82.803,vu
507,6457209.421,601094.236,80.879,vu	584,6457162.454,601199.147,80.632,p	659,6457264.969,601073.224,82.705,vu
508,6457210.219,601092.580,80.762,vu	585,6457153.793,601194.034,80.715,p	660,6457260.950,601077.762,82.488,vu
509,6457210.489,601093.480,80.428,va st	586,6457144.780,601196.161,80.719,p	661,6457256.499,601079.905,82.286,vu
510,6457208.723,601105.372,78.885,va	587,6457149.402,601199.508,79.851,p	662,6457257.283,601087.228,82.142,vu

663,6457255.508,601090.972,81.964,vu	738,6457256.703,601037.666,82.467,a st	815,6457073.596,601000.121,80.595,p
664,6457256.565,601100.673,81.716,vu	739,6457254.909,601043.804,82.583,a	816,6457077.155,600993.742,80.693,ladu
665,6457257.256,601100.838,81.763,vu	740,6457257.644,601049.325,83.068,a	817,6457074.270,600991.220,80.821,ladu
666,6457264.491,601095.759,82.210,vu	741,6457260.085,601048.537,83.357,a	818,6457072.161,600985.415,80.944,ladu
667,6457267.794,601090.533,82.373,vu	742,6457258.208,601042.681,83.023,a	819,6457072.869,600981.826,80.927,ladu
668,6457276.739,601089.347,82.837,vu	743,6457259.542,601038.126,83.142,a	820,6457082.039,600976.207,81.040,ladu
669,6457276.121,601088.252,82.722,va st	744,6457246.240,601031.502,84.396,ts1 st	821,6457090.447,600973.119,81.084,ladu
670,6457275.746,601078.676,82.975,va	745,6457243.117,601029.651,84.513,ts2 st	822,6457095.193,600973.804,80.949,ladu
671,6457272.349,601069.675,83.251,va	746,6457237.451,601040.922,83.485,ts2	823,6457095.692,600979.394,80.778,ladu
672,6457266.470,601068.443,80.729,va st	747,6457240.468,601061.286,83.494,ts1	824,6457092.872,600990.367,80.559,ladu
673,6457260.621,601057.125,80.634,va	748,6457234.293,601053.248,82.883,ts1	825,6457088.400,600993.668,80.611,ladu
674,6457254.779,601052.068,80.664,va	749,6457231.639,601050.672,82.808,ts2	826,6457081.915,600993.433,80.670,ladu
675,6457252.331,601045.431,80.871,va	750,6457224.621,601057.945,82.153,ts2	827,6457101.903,600996.617,80.471,p
676,6457252.433,601043.787,81.461,va	751,6457227.297,601061.286,82.232,ts1	828,6457118.273,600998.535,80.299,p
677,6457254.244,601040.690,81.737,va	752,6457215.785,601067.353,81.502,ts1	829,6457131.669,600997.218,80.255,ladu
678,6457256.811,601032.067,82.120,va	753,6457216.034,601062.416,81.662,ts2	830,6457135.876,600993.495,80.295,ladu
679,6457259.161,601028.073,83.079,va	754,6457209.040,601061.809,81.359,ts2	831,6457144.736,600990.924,80.368,ladu
680,6457257.858,601028.037,82.942,va	755,6457210.983,601069.056,81.288,ts1	832,6457151.362,600990.502,80.350,ladu
681,6457255.812,601031.501,82.059,va	756,6457219.869,601075.061,81.190,p	833,6457155.263,600996.470,80.410,ladu
682,6457251.199,601037.764,81.885,va	757,6457234.139,601069.419,81.925,p	834,6457157.724,601002.950,80.393,ladu
683,6457250.771,601041.585,81.890,va	758,6457240.727,601058.840,82.285,p	835,6457157.806,601007.121,80.299,ladu
684,6457250.571,601045.929,80.933,va	759,6457243.248,601095.969,79.627,p	836,6457154.730,601010.209,80.261,ladu
685,6457252.390,601054.533,80.494,va	760,6457250.300,601116.875,79.085,p	837,6457144.108,601014.033,80.117,ladu
686,6457253.116,601061.594,80.714,va	761,6457261.013,601127.729,78.639,p	838,6457138.750,601014.516,79.827,ladu
687,6457255.304,601068.838,80.750,va	762,6457206.814,601080.042,81.022,p	839,6457135.430,601011.797,79.861,ladu
688,6457255.214,601073.530,80.482,va	763,6457193.291,601087.921,80.952,p	840,6457132.513,601005.258,79.986,ladu
689,6457254.478,601075.797,80.623,va	764,6457179.540,601095.759,80.765,p	842,6457128.702,600983.477,80.589,p
690,6457252.099,601077.627,80.981,va	765,6457166.321,601093.120,80.537,p	843,6457112.652,600984.947,80.608,p
691,6457249.865,601078.610,80.404,va	766,6457154.534,601085.751,80.579,p	844,6457102.818,600983.101,80.738,p
692,6457237.359,601082.338,79.761,va	767,6457144.017,601074.535,80.439,p	845,6457103.237,600969.876,81.035,p
693,6457232.754,601085.989,79.416,va	768,6457133.124,601066.120,80.182,ladu	846,6457112.246,600959.837,81.286,p
694,6457234.566,601089.894,79.406,va	769,6457132.405,601070.365,80.266,ladu	847,6457122.491,600969.922,80.887,p
695,6457231.676,601093.470,79.108,va	770,6457126.693,601071.061,80.077,ladu	848,6457135.913,600964.518,80.996,p
696,6457227.098,601094.385,79.035,va	771,6457122.603,601068.242,79.885,ladu	849,6457140.388,600978.638,80.582,p
697,6457224.866,601099.370,78.923,va	772,6457119.267,601063.249,79.679,ladu	850,6457150.027,600980.395,80.356,ladu
698,6457221.236,601100.267,78.789,va	773,6457120.980,601057.447,79.727,ladu	851,6457149.290,600974.804,80.555,ladu
699,6457216.702,601099.472,78.564,va	774,6457123.849,601055.691,79.759,ladu	852,6457156.661,600964.504,80.588,ladu
700,6457214.329,601102.069,78.587,va	775,6457129.124,601058.369,80.003,ladu	853,6457164.825,600959.414,80.520,ladu
701,6457213.445,601101.231,79.045,vu st	778,6457128.820,601046.381,79.815,p	854,6457170.944,600956.713,80.514,ladu
702,6457213.870,601096.424,80.018,vu	779,6457142.145,601042.242,80.175,p	855,6457175.494,600956.748,80.465,ladu
703,6457213.955,601093.785,80.969,vu	780,6457147.347,601056.863,80.548,p	856,6457178.430,600959.415,80.442,ladu
704,6457222.726,601096.938,80.789,vu	781,6457155.292,601070.711,80.633,p	857,6457181.733,600968.510,80.536,ladu
705,6457224.043,601094.607,80.707,vu	782,6457164.490,601080.391,80.617,p	858,6457184.819,600976.730,80.401,ladu
706,6457223.870,601092.774,80.939,vu	783,6457176.595,601081.070,80.682,p	859,6457190.515,600981.209,80.285,ladu
707,6457229.976,601090.449,80.928,vu	784,6457189.900,601077.320,80.913,p	860,6457195.093,600991.923,80.116,ladu
708,6457230.566,601084.997,80.524,vu	785,6457198.185,601066.427,81.219,p	861,6457193.035,600996.525,80.154,ladu
709,6457233.408,601081.458,80.975,vu	786,6457184.559,601066.091,81.136,p	862,6457185.618,601000.829,80.185,ladu
710,6457234.985,601079.390,81.698,vu	787,6457142.145,601044.458,80.797,p	863,6457175.757,601003.748,80.263,ladu
711,6457242.484,601075.918,81.832,vu	788,6457162.028,601058.199,80.773,p	864,6457167.353,601004.411,80.367,ladu
712,6457250.258,601076.150,81.745,vu	789,6457163.379,601046.866,80.828,p	865,6457162.978,601000.576,80.372,ladu
713,6457252.865,601070.355,81.891,vu	790,6457153.561,601036.295,80.563,p	866,6457158.168,600991.933,80.504,ladu
714,6457249.440,601062.270,82.053,vu	791,6457164.981,601030.073,80.713,p	867,6457154.639,600986.800,80.300,ladu
715,6457248.333,601057.300,82.628,vu	792,6457175.013,601040.345,80.948,p	868,6457150.080,600957.605,80.797,p
716,6457247.891,601049.810,82.724,vu	793,6457177.157,601055.368,81.078,p	869,6457162.025,600950.098,80.718,p
717,6457245.542,601042.882,83.264,vu	794,6457190.371,601054.485,81.339,p	870,6457174.986,600949.216,80.567,p
718,6457246.299,601034.887,84.135,vu	795,6457201.333,601049.578,81.438,p	871,6457184.039,600956.689,80.574,p
719,6457251.110,601029.501,84.628,vu	796,6457190.881,601038.754,81.051,p	872,6457175.650,600939.550,80.846,p
720,6457257.549,601024.517,85.329,vu	797,6457180.535,601027.025,80.756,p	873,6457167.185,600926.370,81.154,p
721,6457261.132,601024.018,85.856,vu	798,6457194.466,601018.679,80.369,p	874,6457161.082,600911.211,81.435,p
722,6457263.666,601025.749,86.146,vu	799,6457202.341,601031.985,80.697,p	875,6457161.444,600927.963,81.264,p
723,6457263.985,601035.841,86.177,vu	800,6457212.108,601044.458,80.821,p	876,6457159.363,600937.730,81.102,p
724,6457265.879,601039.255,87.098,vu	801,6457218.761,601040.710,80.466,p	877,6457157.776,600945.318,80.786,p
725,6457265.066,601044.477,87.316,vu	802,6457222.347,601029.493,80.315,p	878,6457156.947,600894.672,86.515,vu st
726,6457273.928,601054.394,88.381,vu	803,6457227.956,601031.433,79.522,p	879,6457166.388,600897.622,86.550,vu
727,6457279.888,601064.465,88.642,vu	804,6457223.639,601038.645,79.579,p	880,6457172.410,600898.282,86.791,vu
728,6457284.113,601073.267,88.529,vu	805,6457192.844,601008.214,80.053,p	881,6457177.563,600905.689,87.167,vu
729,6457285.042,601081.203,88.376,vu	806,6457178.073,601015.047,80.338,p	882,6457182.763,600916.355,87.401,vu
730,6457284.931,601086.395,88.394,vu	807,6457163.885,601020.149,80.215,p	883,6457187.428,600926.579,87.581,vu
731,6457286.128,601090.658,88.284,vu	808,6457149.411,601023.921,80.253,p	884,6457190.494,600931.998,87.532,vu
732,6457287.395,601101.514,87.772,vu	809,6457136.727,601027.334,79.952,p	885,6457194.782,600937.255,87.387,vu
733,6457289.585,601110.289,87.601,vu	810,6457128.422,601016.579,79.718,p	886,6457198.671,600938.861,87.182,vu
734,6457288.592,601117.667,87.065,vu	811,6457115.936,601009.559,80.006,p	887,6457201.846,600943.140,86.676,vu
735,6457288.042,601123.897,86.950,vu	812,6457102.577,601006.773,80.277,p	888,6457199.275,600946.723,86.281,vu
736,6457283.824,601131.887,85.333,vu	813,6457089.565,601006.842,80.342,p	889,6457197.174,600948.465,86.096,vu
737,6457281.587,601139.356,85.204,vu	814,6457079.932,601009.610,80.276,p	890,6457199.116,600952.886,86.367,vu

891,6457156.680,600891.652,86.535,kat	966,6456959.672,601052.796,83.478,p	1041,6457118.252,600863.917,85.299,kat
892,6457151.101,600887.381,86.453,kat	967,6456965.558,601058.254,83.589,p	1042,6457129.921,600857.400,85.516,kat
893,6457149.021,600889.262,86.472,kat	968,6456977.601,601041.500,84.708,p	1043,6457134.112,600857.504,85.501,kat
894,6457150.294,600892.066,86.509,kat	969,6456971.300,601035.110,84.477,p	1044,6457140.471,600858.452,85.762,kat
895,6457141.910,600897.960,86.469,kat	970,6456962.330,601027.920,83.356,p	1045,6457142.996,600865.156,85.845,kat
896,6457033.435,600906.727,86.331,kat	971,6456957.275,601024.158,82.315,p	1046,6457140.564,600870.374,85.799,kat
897,6457119.826,600916.473,86.268,kat	972,6456946.097,601013.904,81.817,p	1047,6457125.474,600878.373,85.556,kat
898,6457105.185,600924.942,86.292,kat	973,6456937.526,600997.664,81.676,p	1048,6457116.018,600884.285,85.292,kat
899,6457098.147,600929.514,86.435,kat	974,6456932.683,600987.041,81.996,p	1049,6457109.858,600884.588,85.250,kat
900,6457093.415,600927.715,86.449,kat	975,6456925.813,600981.084,82.700,aed	1050,6457103.064,600881.028,85.365,kat
901,6457087.892,600930.459,86.616,kat	976,6456942.985,600970.402,82.786,aed	1051,6457132.199,600893.315,86.012,p
902,6457085.956,600933.805,86.636,kat	977,6456954.593,600984.632,82.472,p	1052,6457146.080,600881.131,86.268,p
903,6457083.950,600939.190,86.757,kat	978,6456963.396,601000.429,82.986,p	1053,6457161.417,600874.184,86.555,p
904,6457073.397,600947.383,86.521,kat	979,6456969.063,601011.502,83.041,p	1054,6457173.249,600867.065,86.542,p
905,6457060.296,600955.100,86.196,kat	980,6456970.637,601014.012,83.833,p	1055,6457163.105,600851.528,86.304,p
906,6457047.311,600962.180,85.890,kat	981,6456975.351,601022.327,84.737,p	1056,6457150.708,600859.098,85.968,p
907,6457039.618,600967.425,85.899,kat	982,6456984.677,601031.906,85.334,p	1057,6457142.928,600848.072,85.698,aed
908,6457038.690,600971.875,85.868,kat	983,6456995.653,601015.498,85.812,p	1058,6457103.064,600881.028,85.365,kat
909,6457039.670,600981.475,86.081,kat	984,6456990.706,601010.101,85.584,p	1059,6457141.402,600825.195,85.641,p
910,6457041.609,600986.411,86.184,kat	985,6456982.636,601001.879,84.060,p	1060,6457125.075,600838.394,85.682,p
911,6457042.144,600993.606,86.263,kat	986,6456979.798,600999.308,83.400,p	1061,6457109.352,600850.188,85.354,p
912,6457035.974,600996.273,86.308,kat	987,6456971.016,600990.415,83.401,p	1062,6457092.287,600859.182,85.294,p
913,6457026.700,601003.310,85.504,kat	988,6456968.027,600974.695,83.130,p	1063,6457075.713,600868.404,85.246,p
914,6457024.251,601005.389,85.960,kat	989,6456958.709,600960.650,83.056,aed	1064,6457061.682,600879.175,84.882,p
915,6457022.819,601007.099,85.664,mets	990,6456975.475,600950.537,83.918,aed	1065,6457045.005,600888.525,84.847,p
916,6457011.218,600994.334,85.752,mets	991,6456984.312,600968.675,83.903,p	1066,6457029.039,600898.999,84.930,p
917,6457010.674,601006.012,85.247,mets	992,6456990.106,600986.617,84.155,p	1067,6457013.302,600910.613,84.796,p
918,6457006.785,601020.865,84.734,mets	993,6456993.252,600990.583,84.830,p	1068,6456998.302,600918.488,85.180,p
919,6456992.988,601038.557,84.231,mets	994,6456997.735,600995.962,85.556,p	1069,6456986.291,600925.753,85.414,p
920,6456982.804,601053.067,83.099,mets	995,6457003.315,601002.364,85.838,p	1070,6456972.653,600933.060,84.654,p
921,6456970.699,601070.073,81.843,mets	996,6457016.113,600988.077,85.845,p	1071,6456958.185,600942.645,83.324,p
922,6456961.725,601083.220,81.222,mets	997,6457006.029,600977.568,86.186,p	1072,6456943.214,600951.878,82.851,p
923,6456962.608,601098.098,81.371,mets	998,6457003.879,600975.795,85.582,p	1073,6456927.742,600961.381,83.199,p
924,6456948.749,601109.379,81.539,mets	999,6456997.295,600968.939,85.142,p	1074,6456912.931,600971.006,83.298,p
925,6456932.157,601103.396,80.769,mets	1000,6456992.464,600958.174,84.285,kat	1075,6456897.808,600979.871,82.806,p
926,6456914.371,601099.854,80.967,mets	1001,6456986.809,600952.981,84.015,kat	1076,6456883.342,600989.096,82.155,p
927,6456914.365,601099.867,80.966,mets	1002,6456985.879,600947.005,84.414,kat	1077,6456877.371,600976.249,83.073,p
928,6456908.462,601077.740,80.693,mets	1003,6456988.659,600942.916,84.678,kat	1078,6456892.284,600965.753,83.434,p
929,6456900.474,601060.440,79.872,mets	1004,6456998.852,600937.288,84.802,kat	1079,6456907.885,600954.856,83.701,p
930,6456891.548,601045.815,79.717,mets	1005,6457004.474,600956.188,84.710,kat	1080,6456924.325,600943.951,83.598,p
931,6456878.617,601035.058,80.164,mets	1006,6457010.308,600936.936,84.636,kat	1081,6456943.253,600934.798,83.406,p
932,6456861.652,601031.824,80.044,mets	1007,6457012.002,600942.478,84.780,kat	1082,6456957.512,600922.960,83.855,p
933,6456852.467,601032.362,79.970,p	1008,6457004.041,600950.876,84.769,kat	1083,6456974.788,600913.740,84.404,p
934,6456866.869,601018.278,80.556,p	1009,6456996.761,600956.188,84.544,kat	1084,6456992.297,600905.242,84.544,p
935,6456885.236,601024.974,80.679,p	1010,6457012.895,600963.491,85.558,p	1085,6457007.710,600893.401,84.748,p
936,6456901.301,601038.206,80.086,p	1011,6457025.937,600975.416,85.913,p	1086,6457024.185,600882.767,84.991,p
937,6456912.899,601055.335,80.163,p	1012,6457028.705,600989.765,86.117,p	1087,6457039.093,600871.722,85.408,met
938,6456920.374,601073.885,80.996,p	1013,6457024.946,600956.188,84.791,s	1088,6457048.978,600872.235,85.301,met
939,6456929.431,601088.303,81.502,p	1014,6457016.044,600935.904,84.611,p	1089,6457060.224,600858.851,85.378,met
940,6456933.190,601093.103,80.716,p	1015,6457010.442,600929.218,84.711,aed	1090,6457068.090,600844.411,85.606,met
941,6456949.758,601084.795,80.838,p	1016,6457027.806,600918.437,84.760,aed	1091,6457074.144,600827.534,85.948,met
942,6456947.460,601076.841,82.001,p	1017,6457034.316,600928.966,85.014,p	1092,6457074.144,600827.534,85.948,met
943,6456942.609,601068.240,81.936,p	1018,6457039.121,600937.726,85.720,p	1093,6457078.041,600813.179,86.165,met
944,6456936.276,601058.350,81.030,p	1019,6457046.435,600950.274,85.549,p	1094,6457078.600,600804.068,86.379,met
945,6456931.572,601051.694,80.376,p	1020,6457064.780,600940.483,85.980,p	1095,6457071.880,600794.682,86.439,met
946,6456918.783,601036.406,80.230,p	1021,6457059.331,600933.267,85.489,p	1096,6457064.021,600796.283,86.162,met
947,6456906.841,601021.314,80.658,p	1022,6457050.704,600921.547,85.439,p	1097,6457081.318,600792.253,86.388,p
948,6456897.563,601008.099,81.522,p	1023,6457046.532,600914.892,84.899,p	1098,6457095.562,600786.141,85.724,p
949,6456893.101,601001.205,81.855,aed	1024,6457043.174,600908.878,84.771,aed	1099,6457110.409,600778.070,85.459,p
950,6456881.103,601008.481,81.249,aed	1025,6457058.746,600899.390,84.972,aed	1100,6457121.606,600793.059,85.150,p
951,6456872.2916,600994.966,81.870,aed	1026,6457064.993,600911.215,85.707,p	1101,6457106.182,600801.517,85.200,p
952,6456865.552,600982.733,83.089,aed	1027,6457071.177,600923.102,85.614,p	1102,6457090.898,600809.489,85.816,p
953,6456858.244,600970.763,83.536,aed	1028,6457075.706,600931.932,86.231,p	1103,6457087.115,600826.558,85.776,p
954,6456851.669,600963.630,82.506,aed	1029,6457091.124,600922.551,86.306,p	1104,6457081.745,600844.396,85.472,p
955,6456846.184,600984.951,82.988,p	1030,6457084.616,600909.047,85.187,p	1105,6457075.354,600858.628,85.255,p
956,6456853.724,600990.519,83.310,p	1031,6457076.312,600899.479,85.329,p	1106,6457094.299,600846.121,85.358,p
957,6456848.887,601008.973,82.751,p	1032,6457070.485,600892.207,85.583,aed	1107,6457101.111,600828.371,85.616,p
958,6456835.482,601004.445,82.222,p	1033,6457087.673,600881.741,85.325,aed	
959,6456844.386,601020.874,81.992,p	1034,6457094.215,600898.010,84.992,p	
960,6456861.664,601003.650,81.768,p	1035,6457103.054,600912.955,85.912,p	
961,6456908.869,600991.551,82.465,aed	1036,6457120.315,600905.519,85.974,p	
962,6456921.332,601003.299,81.265,p	1037,6457111.809,600894.491,85.421,p	
963,6456932.917,601018.544,81.040,p	1038,6457097.960,600875.515,85.271,aed	
964,6456944.615,601037.229,81.173,p	1039,6457101.629,600876.809,85.214,kat	
965,6456952.625,601045.479,82.542,p	1040,6457104.974,600871.922,85.279,kat	

1108,6457115.750,600822.200,85.442,p
1109,6457130.405,600811.970,85.429,p
1110,6457176.596,600884.313,86.931,p
1111,6457187.110,600899.547,87.634,p
1112,6457194.627,600914.663,88.156,p
1113,6457244.246,601025.353,84.785,av
1114,6457233.307,601015.516,84.695,av
1115,6457248.989,601029.341,84.608,av
1116,6457250.571,601028.762,84.715,av
1117,6457254.093,601024.954,85.127,av
1118,6457256.409,601023.400,85.380,av
1119,6457258.717,601023.298,85.636,av
1120,6457261.321,601023.831,85.877,av
1121,6457263.560,601024.745,86.254,av
1122,6457265.156,601026.868,86.254,av
1123,6457264.068,601029.050,86.296,av
1124,6457241.663,601022.581,84.805,vu
st
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1126,6457252.056,601010.277,85.612,vu
1127,6457254.530,601005.645,85.719,vu
1128,6457245.605,600989.752,85.545,vu
1129,6457239.614,600980.880,85.253,vu
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st
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1132,6457249.620,601000.931,84.961,va
1133,6457251.022,601006.931,85.105,va
1134,6457244.086,601016.727,84.002,va
1135,6457241.732,601020.176,83.633,va
1136,6457238.856,601011.479,84.331,va
1137,6457239.471,601020.789,84.555,vu
st
1138,6457237.830,601012.319,84.527,vu
1139,6457234.564,600994.979,84.300,p
1140,6457230.179,600981.233,84.802,p
1141,6457224.542,600976.748,85.617,p
1142,6457224.594,600968.105,86.103,p
1143,6457219.227,600957.719,86.654,p
1144,6457215.887,600944.732,87.501,p
1145,6457208.019,600934.240,88.004,p
1146,6457200.455,600924.874,88.296,p
1147,6457099.371,600763.275,86.129,p
1148,6457081.279,600771.255,86.082,p
1149,6457062.143,600778.677,86.008,p
1150,6457055.456,600801.539,85.810,met
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KP1,6464607.108,598065.667,77.464,kp
KP2,6464607.126,598065.667,77.440,kp