Explanatory note on Chapter 4.2 - Potential impact, Air

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Detailed Contents:

1. Review of impact of the change in the relevant legal framework on the Project and/or EIA Report

Following the review of the legal framework relevant for Chapter 4.2 – Potential impact, Air (review of all laws regulating the environmental factor "air", respectively), the majority of the legal changes are related to the need to ensure a better implementation of the European directives in the national legislation. A summary of the developments of the relevant legal framework and the way in which they impact on the Project is presented below.

- **GEO No.** 243/2000 **-** this law was revised by the Emergency Ordinance No. 12/2007. The amendments on this government ordinance aim to improve the implementation of the European legislation on air protection and quality. More specifically, the amendments are on the provisions of GEO No. 243/2000 regarding the reports that the administrative authorities (i.e. Ministry of Environment and Forests and National Agency for Environmental Protection) should forward to the European Commission in relation to monitoring of air quality. GEO No. 12/2007 sets forth very clearly the information to be forwarded as well as the timeline for sending the reports. Consequently, the revisions on this ordinance are not relevant from the Project's perspective and hence do not require revisions or updates on the EIA Report.
- **Orders No. 462/1993 and 756/1997** – have not been changed after the submission of the EIA Report.
- **Order No.** 592/2002 / was revised by Order No. **27/2007. As with GEO No. 243/2000, the amendments aim to extend the scope of the information that the Romanian authorities must forward to the European Commission.** Consequently, the revisions on this law are not relevant from the Project's perspective and hence do not require revisions or updates on the EIA Report.
- **Government Decision No. 568/2001 -** revisions on this law do not refer to the revision of the target values of the volatile organic compounds or of any other standards related to the operation of petrol storage / distribution facilities Consequently, the revisions are not relevant from the EIA Report perspective and hence do not require revisions or updates thereof.
- **Order No. 448/2007 -** is a new law that came into effect after submission of the EIA Report. The Order (which implements Directive 2004/107/CE) has a standard attached which includes air quality assessment regulations related to the concentrations of arsenic, cadmium, mercury, nickel and polycyclic aromatic hydrocarbons. Also, the appendixes of the standard provide the target values for the concentrations of arsenic, cadmium, nickel and benz(a)pyrene in air as well as the joint methods and criteria for assessing the arsenic, cadmium, mercury, nickel and polycyclic aromatic hydrocarbon concentrations and sediments in the air. To update the findings of the Report subject to the provisions of this regulation, RMGC commissioned a study which will complete the air impact assessment by extending the assessment onto the contaminants which in 2006 hadn't been assigned limit values or air target values under the legislation in force in Romania. This will include doing dispersion modeling of the local pollutants originating from the emission sources associated with all the activities of the Project using the AERMOD model, pollutant map representation on various averaging intervals, interpretation and review of the concentrations obtained by comparing them with the limit or target values set out by the legislation in force for arsenic, cadmium, mercury, nickel and polycyclic aromatic hydrocarbons.
- **Order No. 1095/2007** – is, again, a new law that came into effect after submission of the EIA Report. The order has a standard attached which sets forth the air quality parameters for public information purposes. The rules in the standard are applicable to the interpretation of the air quality data supplied by the automatic stations within the national air quality monitoring network. In setting the air quality parameters the concentrations considered are that of SO_2, NO_2, O_3, CO şi PM_{10}. Order No. 1095/2007 does not set target values for the contaminants listed above but only the method for setting the quality parameters based on the measured concentrations. Consequently, the revisions on this law are not relevant from the Project's perspective and hence do not require revisions or updates on the EIA Report.

Developments of the EU legislation:

- Regulation No. 219/2009 of the European Parliament and Council on adapting documents that are subject to the procedure mentioned under art. 251 of the Treaty to the Decision 1999/468/EC of the Council in terms of the regulation and control procedure. The Regulation amends Directive 2004/107/CE of the European Parliament and Council of 15 December 2004 regarding arsenic, cadmium, mercury, nickel and polycyclic aromatic hydrocarbons in the air.

- Directive 2009/30/EC amending Directive 98/70/CE with respect to petrol specifications, introduction of a greenhouse gas monitoring and mitigation mechanism and Directive 1999/32/EC of the Council with respect to specifications for fuels used by inland navigation ships and abrogating Directive 93/12/EEC.
- Directive 2010/26/EU of the Commission of 31 March 2010 amending Directive 97/68/EC of the European Parliament and Council on the alignment of the member state legislation in terms of the measures against emissions of gaseous contaminants and polluting particles from internal combustion engines to be installed on mobile non-road equipment.
- **Directive 2008/50/EC** on air quality and cleaner air for Europe.

2. Updates on Chapter 4.2 – “Air” – Air Quality Baseline Report

2.1. Baseline

Climatic data, i.e. air temperature, relative humidity, precipitation and sunshine duration were updated with the data recorded between 2006 - 2010 by the Rosia Montana weather station installed on Rotundu Peak, about 2 km north – east from the Project site. Data was supplied by the National Meteorology Administration.
The review of the information confirms that for the 2006 - 2010 period there are no significant differences in the parameters compared with the timeframe considered in the baseline study, with the parameters meeting the value ranges determined previously.
Tables with updated data are presented below:

Table 1-1. Monthly average temperature (^{0}C)

Year	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	M,A,[2]
1988	-0.4	-2.5	-2.1	3.4	9.9	11.7	16.9	16	10.6	6.2	-4.4	-4	5.1
1989	-3.4	-1.8	2.3	7.8	8.7	10.8	14.7	14.7	10.3	6.6	-0.5	-2.7	5.6
1990	-2.6	0.7	4	4.8	9.9	12.1	14.6	15.7	7.9	8.2	2.5	-3	6.2
1991	-4.2	-5.7	3.1	3.6	5.8	13.2	15.8	13.7	11.3	4.7	2.3	-6.5	4.8
1992	-3.7	-4.4	-0.5	5.3	9.4	12.9	15.2	19.9	10.5	5.4	0.6	-3.1	5.6
1993	-3.9	-5.7	-2	3.8	11.3	12.8	14	15.7	9.7	9.2	-0.6	-1.3	5.3
1994	-1	-2.2	1.5	5.8	9.7	13.2	16.8	15.8	15.1	5.5	1.5	-2.6	6.6
1995	-5.8	0	-0.3	3.6	9	12.9	17.4	14.3	9.1	8.9	-1.7	-2.2	5.4
1996	-3.5	-5.1	-4.5	5.1	11.9	14.4	13.6	14.4	6.3	6.2	3.9	-2.4	5.0
1997	-1.9	-3.2	-1.8	0	10.4	13.4	13.1	13.7	9.5	2.9	2.6	-2	4.7
1998	-2.4	-0.5	-4.1	5.9	8.8	13.7	14.8	15.5	9.5	6.9	-1.7	-4.8	**5.1**
1999	-0.9	-5.8	0.1	5.5	9.4	14.8	16.7	15.1	12.9	6.0	0.7	-3.0	**6.0**
2000	-7.7	-3.2	-1.6	8.0	12.0	15.1	14.6	17.4	10.7	9.7	7.0	0.9	**6.9**
2001	-1.6	-2.6	3.1	5.4	11.1	11.4	15.6	17.0	9.6	9.2	-1.4	-7.8	**5.8**
2002	-3.5	0.9	2.7	4.9	12.7	14.7	17.1	14.9	10.1	5.7	4.6	-3.6	**6.8**
2003	-4.4	-7.2	-0.8	3.4	15.2	16.3	15.3	17.8	11.0	3.4	4.0	-1.3	**6.1**
2004	-6.9	-4.1	-0.2	6.4	8.5	13.2	15.6	15.0	10.4	8.5	1.8	-1.5	**5.6**
2005	-4.6	-5.9	-2.9	5.5	11.0	12.6	15.2	14.4	12.3	6.9	1.2	-3.3	**5.2**
2006	-5.5	-5.3	-1.5	6.2	9.5	12.9	16.8	13.9	11.9	8.8	2.7	-0.1	5.9
2007	-1.2	-1.0	3.0	6.6	12.5	15.8	17.9	16.8	9.5	6.9	-1.0	-2.2	7.0
2008	-2.0	-1.5	0.2	5.8	11.0	14.8	15.1	17.1	10.2	8.4	3.4	-1.2	6.8
2009	-2.7	-3.9	-0.9	9.3	11.3	14.0	16.7	16.5	13.6	6.5	3.9	-1.8	6.9
2010	-4.9	-2.4	-0.4	5.9	10.4	14.4	16.4	17.1					
M.L.[1]	-3.4	-3.1	-0.2	5.3	10.4	13.5	15.6	15.8	10.5	6.9	1.42	-2.7	5.8

Multiannual monthly average
Annual average

Table 1-4. Maximum absolute temperature (^{0}C)

Year	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	T,A,[2]
1988	7.2	7.9	7.9	14.7	19.6	20.5	28.0	27.0	22.0	19.4	4.5	6.2	28.0
1989	5.4	8.8	15.3	20.2	21.3	19	25.8	25.5	20.1	15.6	13	11.7	25.8
1990	9.8	13	17.5	16.3	20.8	24.2	25.8	25.3	23.8	19	14	5.7	25.8
1991	5.6	8	19.5	13.1	16.6	26.6	23.7	23.6	22.7	19.3	10.2	5	26.6
1992	7.5	7.8	14.3	19.5	19.7	22.4	24.5	27.6	23.8	20.1	16	8.2	27.6
1993	10.7	9.4	13	16.9	20.3	24.8	26.8	25.5	22.8	20.6	11.7	7.2	26.8
1994	8.9	9.9	12	17.9	23.2	27.0	24.6	27.3	26	17.6	14.2	4.4	27.3
1995	5.5	8.4	15.5	18.6	21.7	23.0	25.3	22.7	21.6	22.0	9.2	7.5	25.3
1996	8.3	3.4	9	18.8	24.3	25	24.8	25.4	15.4	18	16	9	25.4
1997	8.6	9	11.2	13.9	23.3	25.3	23.7	21.4	21	17.4	16.3	7.2	25.3
1998	6.7	13.4	8.8	17.3	20.9	23.8	26.5	27.4	20.5	19.7	11.0	10.5	27.4
1999	9.5	7.1	12.2	16.9	21.3	24.0	25.8	26.2	21.5	20.3	15.3	6.3	26.2
2000	4.2	8.7	12.1	20.2	21.8	27.4	28.3	29.8	22.6	21.8	16.7	11.6	29.8
2001	11.4	11.7	17.9	18.3	21.6	24.0	25.7	27.8	18.2	20.8	12.6	0.3	27.8
2002	8.0	12.0	15.3	14.8	22.4	27.3	28.4	22.8	20.6	16.6	17.5	7.1	28.4
2003	3.8	7.3	12.5	19.7	24.6	25.7	25.6	26.5	23.7	16.8	16.3	10.6	26.5
2004	3.7	5.9	14.3	18.6	19.5	21.9	27.9	24.3	21.1	18.9	18.9	6.8	27.9
2005	7.9	3.8	12.9	18.2	25.3	22.6	27.8	26.2	20.3	16.6	11.6	9.0	27.8
2006	5.1	6.9	11.8	18.7	23.5	27.7	26.3	25.6	19.9	20.5	12.5	10.9	27.7
2007	6.6	7.1	13.5	18.3	24.8	24.9	30.3	31.5	19.4	17.4	10.4	6.6	31.5
2008	8.3	11.2	11.0	18.3	24.9	25.0	27.6	27.6	27.2	17.2	20.1	11.4	27.6
2009	7.9	8.8	15.1	19.0	23.8	24.7	26.5	25.9	22.4	20.8	13.8	10.3	26.5
2010	11.1	6.4	15.1	18.0	21.6	26.5	26.0	29.1					
T.L.[1]	11.4/2001	13.4/1998	19.5/2001	20.2/2000	25.3/2005	27.7/2006	30.3/2007	31.5/2007	27.2/2008	22.0/2000	20.1/2008	11.7/1989	29.8/2000

1. Maximum absolute monthly temperature during 1988 - 2010
2. Maximum absolute temperature for each year in period 1988 - 2010

Table 1-5. Minimum absolute temperature (^{0}C)

Year	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	T,A,[2]
1988	-7	-14.8	-11.5	-6.9	2.6	4.6	7.6	5	2.3	-7	-11.7	-13.3	-4.2
1989	-11.2	-8.5	-4.8	-0.5	-3	4	5	4.6	4.6	-3.4	-14.9	-15	-3.6
1990	-12.6	-7.4	-10.6	-3.6	0	2.8	6.2	6	1.5	-5.8	-5.2	-11.6	-3.4
1991	-19.4	-18.8	-8.4	-3.7	-0.8	5.5	7.4	5.3	-1.2	-7.9	-7.3	-16	-5.4
1992	-12.5	-14	-9	-4.8	1	6.6	8.4	9.5	1.5	-5.4	-6.6	-13.5	-3.2
1993	-17	-14.3	-11.5	-6.7	5	3.4	3.5	4.4	2.2	-1.1	-11.2	-10.5	-4.5
1994	-9.6	-17.1	-7	-3	-1.4	3	8.2	6.2	5.6	-4	-10	-11.1	-3.4
1995	-13.1	-11	-11.1	-8.5	-1	5.3	10.4	3	-1.4	-1.6	-10.8	-13.1	-4.4
1996	-13.2	-12.5	-15	-9.1	4.2	3.9	3.8	7.6	0.9	-2.2	-7	-18.8	-4.8
1997	-12.5	-14	-11.1	-10.5	0	1.9	7.2	7.1	0.7	-9.5	-7.5	-15.4	-5.3
1998	-14.3	-16.9	-12.2	-1.8	0.3	3.7	3.5	4.6	2.4	-1.9	-11.9	-16.7	-16.9
1999	-14.0	-15.7	-10.0	-2.5	-2.2	5.0	9.6	7.0	5.0	-5.0	-9.2	-13.8	-15.7
2000	-18.2	-11.1	-11.8	-5.6	-0.4	2.2	4.5	5.4	1.7	-1.6	-1.5	-13.2	-18.2

2001	-12.1	-12.4	-5.2	-6.5	0.0	2.0	8.5	5.0	1.5	-2.4	-10.7	-16.2	-16.2
2002	-17.0	-8.5	-6.9	-8.0	4.8	2.5	9.5	9.0	1.6	-2.8	-7.3	-16.6	-17.0
2003	-15.3	-16.4	-16.1	-11.0	1.4	6.1	6.2	7.6	0.8	-8.4	-6.0	-11.4	-16.4
2004	-18.4	-21.9	-16.0	-1.2	-1.4	5.8	5.8	7.6	-0.7	-4.9	-11.1	-11.2	-21.9
2005	-14.7	-18.0	-19.7	-6.7	-1.0	1.2	7.5	4.9	4.9	-3.0	-10.7	-12.1	-19.7
2006	-18.2	-15.7	-10.9	-2.3	1.3	2.7	7.5	4.5	5.4	-3.7	-10.0	-11.1	-18.2
2007	-13.5	-8.4	-5.0	-1.8	-1.7	7.4	5.9	6.7	1.2	-3.5	-10.0	-12.5	-13.5
2008	-11.4	-17.5	-8.1	-1.8	1.9	6.9	7.7	5.7	1.2	-0.7	-9.8	-12.7	-17.5
2009	-14.0	-11.8	-9.3	0.1	1.3	3.5	8.4	10.2	5.9	-6.4	-6.7	-18.4	-18.4
2010	-14.4	-11.6	-13.2	-0.2	-0.1	4.4	7.0	4.4					
T,L,[1]	-18.4/2004	-21.9/2004	-19.7/2005	-11.0/2003	-2.2/1999	1.2/2005	3.5/1998	3/2010	-1.4/1995	-9.5/1997	-14.9/1989	-18.8/1996	-21.9/2004
1. Minimum absolute monthly temperature during 1988 - 2010 2. Minimum absolute temperature for each year in period 1988 - 2010													

Table 1-6. Relative air humidity (%)

Year	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	M,A,[2]
1988	82	84	88	79	74	78	71	65	79	68	81	93	78.5
1989	76	84	74	73	75	83	70	80	84	76	78	81	77.8
1990	75	69	64	74	66	72	68	65	79	66	84	85	72.3
1991	84	78	71	72	84	76	79	79	75	82	77	83	78.3
1992	74	81	68	68	60	77	67	52	65	83	84	7	65.5
1993	75	77	86	78	69	75	78	75	78	74	77	88	77.5
1994	83	81	78	73	72	71	66	68	66	78	76	85	74.8
1995	89	79	78	76	79	81	70	76	84	74	87	86	79.9
1996	80	83	79	67	79	72	75	77	92	81	77	86	79.0
1997	76	80	75	81	71	76	84	79	75	77	77	86	78.1
1998	78	72	79	74	77	78	78	69	84	80	87	77	**77.8**
1999	76	95	75	77	74	76	74	76	74	77	71	84	**77.4**
2000	82	81	79	63	57	54	61	50	70	50	56	73	**64.7**
2001	77	86	78	73	70	81	82	74	87	83	87	86	**80.3**
2002	83	76	66	74	69	74	75	78	81	83	77	78	**76.2**
2003	91	77	71	69	62	66	78	58	72	88	78	75	**73.8**
2004	92	88	80	72	76	76	74	79	81	78	85	82	**80.3**
2005	87	81	78	71	77	75	81	87	81	78	79	88	**80.3**
2006	76	88	90	80	77	84	71	85	78	75	82	82	81
2007	92	89	74	56	72	71	63	74	81	79	87	79	76
2008	79	80	85	78	76	79	76	71	79	82	76	84	79
2009	80	92	88	58	69	77	74	76	68	87	88	94	79
2010	89	91	84	78	84	84	84	79					
M,L,[1]	81.6	82.3	77.7	72.3	72.6	75.5	73.9	72.7	77.9	77.2	79.6	80.1	76.7
1 Multiannual monthly average 2 Annual average													

Table 1-8. Precipitation volume (mm)

Year	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	T,A,[2]
1988	49.8	39.3	120.7	66.8	79.4	89	99.8	38.5	75.2	40.7	14.1	86.6	800
1989	7	39.5	20.8	81.9	33.9	109.1	54.5	203.5	74	31.6	43	25.8	725
1990	12.5	41.3	13.5	60	75.7	85.4	62.7	65.6	64.2	68.3	41.5	53	644
1991	12.6	23.4	18.1	41.9	136.6	86.3	159	76.8	69.1	98.4	44.9	17.1	784

1992	25	12.8	7.3	47	49.9	89.3	72.3	52.5	53.4	134	44.1	12.2	600
1993	20.5	17.9	62.8	78.3	51.6	59	84.7	36	72	20.7	63.9	107.4	675
1994	37.9	15.8	36.4	81	55	114.1	103.7	78.4	92.5	73.2	26.4	34	748
1995	62.1	39	35.3	58	86	180.3	24.3	91.4	87.6	3	73.4	143	883
1996	54.6	29.7	24.1	16.7	109.9	97.5	71.1	113.4	143.2	53.1	38.5	63	815
1997	25.6	43.2	24.3	96	84.1	112.5	156.5	76.8	68.8	71.6	29.3	55.5	844
1998	28.2	6.1	40.2	58.8	106.0	157.1	102.3	122.2	133.7	108.6	49.2	16.7	**929.1**
1999	17.7	112.3	28.8	105.0	150.2	132.1	66.9	63.8	44.6	26.3	41.0	146.1	**934.8**
2000	37.9	22.8	66.4	56.8	74.4	29.8	101.4	35.2	71.7	2.6	23.2	61.9	**584.1**
2001	38.3	49.9	103.9	67.7	61.1	132.6	159.5	68.2	137.7	25.1	60.6	37.9	**942.5**
2002	11.4	22.1	27.7	35.7	63.1	43.8	174.3	177.9	112.9	56.0	47.5	32.9	**805.3**
2003	68.8	20.2	13.7	30.9	49.6	28.8	147.0	28.4	53.9	142.8	29.6	27.2	**640.9**
2004	69.9	55.5	52.8	119.7	68	100.2	151.7	82.8	68.8	51.1	92.5	47.0	**960.0**
2005	46.5	52.3	76.9	124.2	80.1	79.5	178.7	130.7	71.6	21.5	38.5	95.1	**995.6**
2006	34.1	48.6	122.9	125.2	107.5	130.5	105.0	171.7	37.3	30.6	20.8	18.4	952.6
2007	93.4	62.6	42.7	11.6	149.3	78.8	69.4	84.4	100.2	61.7	89.1	24.6	867.8
2008	17.9	14.6	109.0	70.0	81.1	80.8	154.6	33.2	58.4	65.4	70.6	79.5	835.1
2009	36.9	59.8	47.1	19.0	69.4	138.6	69.0	84.8	17.8	94.8	91.2	87.8	816.2
2010	99.5	47.2	38.8	67.9	146.8	127.8	141.6	42.4					
M,L,[1]	39.5	38.1	49.3	66.1	85.6	99.3	109.1	85.2	77.7	58.2	48.8	57.9	814.8

1 Multiannual monthly average
2 Total annual volume

Table 1-9. Snow layer width (cm)

Year	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
1988	11	11	1								3	15
1989	16	6									1	2
1990	2	4										9
1991	2	7	1							1		6
1992	15	17									1	1
1993	3	5	2								7	8
1994	7	12									1	4
1995	24	5	1								6	6
1996	12	35	9								1	3
1997	13	15	3									1
1998	9	7	10								6	14
1999	7	51	28								4	30
2000	74	53	40									1
2001	1	10	4								6	32
2002	32	7		1							2	3
2003	30	53	30	1						1		5
2004	26	45	29	2							7	6
2005	14	44	68	8							2	35
2006	28	48	53	1						--	1	4
2007	9	16	0	--						0	23	8
2008	5	4	12	0						--	13	12
2009	6	18	13	--						3	0	7
2010	7	13	10	0								
M,L,[1]	15.3	21.1	13.7	0.6						0.2	3.8	9.6

1 Multiannual monthly average

Table 1-10. Monthly dominant wind direction

Year	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
2009	SSV, ENE	SV, SE	SSV	SSV, E	SV, NNE	SSV, ENE	SSV, NE	SV, NE	SSV, ENE	SSV, NE	SSV, SV	SSV, SV
2010	SSV, NE	SSV, SE	SV	SV, SE	SSV, SV	SV, NNE	SV, NE	SV, NE				

Tabel 1-11. Monthly average wind speed (m/s)

Year	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
2009	3.4	3.3	3.9	2.7	2.9	3.5	2.8	2.5	2.7	3.7	4.2	4.0
2010	3.3	3.5	3.9	3.0	4.1	2.8	2.5	3.1				

Tabelul 1-12. Monthly sunshine duration (solar radiation - hours)

Year	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	D,A,2
2002	56.18	73.23	159.03	130.78	221.50	221.40	224.93	169.60	97.07	86.40	62.60	42.80	1545.53
2003	28.30	119.30	167.50	172.23	269.10	273.60	193.37	284.40	128.40	72.68	90.20	31.77	1830.85
2004	66.23	77.87	125.10	148.47	174.28	238.45	190.77	232.93	136.63	110.78	38.18	20.85	1560.55
2005	53.55	65.72	131.63	120.07	202.35	199.92	179.47	177.52	128.97	128.15	41.95	18.05	1447.33
2006	135.5	67.7	91.6	135.9	193.6	189.0	283.1	213.8	216.9	224.2	111.2	121.0	1983.5
2007	30.5	78.2	183.4	272.9	245.5	289.0	309.7	230.6	185.1	141.4	65.1	123.2	2154.6
2008	114.7	149.6	100.3	138.5	228.7	233.1	274.2	312.6	146.8	156.5	137.9	100.2	2093.1
2009	97.6	82.2	109.5	254.3	239.4	255.9	310.1	251.0	216.5	125.2	88.0	34.9	2064.6
2010	72.7	61.9	109.3	150.8	176.9	217.9	245.1	287.4					
M,L,1	72.80	86.29	130.81	169.32	216.81	235.36	245.63	239.98	157.04	130.66	79.39	61.59	1825.68
1 Multiannual monthly average **2 Annual duration**													

2.2. Current air quality status

Rosia Montana Mine operated by C.N.C.A.F. MINVEST S.A. Deva – Rosiamin S.A. Rosia Montana Branch closed operations on 15 May 2006. Consequently, the air pollution sources associated with mining activities present in the area have changed compared to 2006 and are now as follows:

- The air pollution sources present in the industrial area (Project site) are associated with the stripped surfaces of the Cetate and Carnic pits mined until 2006 by C.N.C.A.F. MINVEST S.A. Deva, - Rosiamin Branch and stockpiling of waste rock (Valea Verde and Hop stockpiles);
- Sources present outside the industrial area include the Valea Salistei and Gura Rosiei tailings management facilities;

Consequently, given that the sites have not been rehabilitated, they represent active sources exposed to wind erosion and hence particulate sources. Of these sites, the most significant are the TMFs of whose dry surfaces may generate at wind speed of over 3 m/s high quantities of dust carried by wind. Apart from the changes occurred as a result of Rosiamin's closure and which brought about a reduction of the pollution sources associated with this mining operation, all the other sources remain unchanged and have the same impact as assessed in 2006.

3. Updates on Chapter 4.2 - “Air”

3.1. Baseline

The changes that occurred are identical to those presented in Vol. **Air Quality Baseline Condition Report.**

Mercury Release

The letter received from the Ministry of Environment and Forests with the views of the TAC members requested a more detailed presentation of the Project activities and sites which may generate mercury emissions and the measures to prevent and control their dispersion in the air. Chapter 2 – Technological Processes of the EIA report described in detail the flowsheet to be employed to process the Rosia Montana ore also specifying the mercury recovery method. Below we present more details on this subject.

Following the testwork completed it was determined that the Rosia Montana ore does not contain mercury above the average level present in the ground. Mercury is present in the ore as cinnabar, which is a mercury sulphide. However, a special retort that collects 100% of the mercury vapors forming at temperatures above 600^0C was designed in order to collect any potential process flowsheet emission (gold sludge drying phase). This retort was introduced in the process for environmental protection and health and safety reasons.

In the extraction and processing process, mercury stays in the solid ore material until contact with the liquid cyanide present in the CIL circuit. At this moment, mercury generally behaves like the gold and silver that go in solution as cyanide complexes that are alter adsorbed onto active carbon. When active carbon is subjected to elution in order to recover gold and silver, the same happens with mercury. It is subjected to this elution process and goes to the electro-winning process Mercury control methods will be used from this moment. This is necessary because although mercury is stable when part of a cyanide complex, it may evaporate in small quantities together with the vapors from the hot eluate solution. Consequently, the elution system is fitted with a gas emission collection point which directs gases through a pipeline system to a wet filter in order to remove certain compounds including potential mercury vapors. Most of the mercury will be galvanized onto electrowinning cells and collected on cathodes and electro-winning sludge settling together with gold and silver as metal mercury. Mercury would be released with the gases from the smelting process if the sludge were smelted without pre-treatment however it is much easier to control if the sludge is initially distilled in retort.

From the electrowinning sludge containing gold and silver, other insignificant impurities contained therein, such as copper or mercury are collected by filtering. Filtered sludge is placed in “baskets” which are in fact small steel containers. Baskets are placed in one or two retorts in the gold room. Here filtered sludge is heated and existing mercury is volatized and released as vapors. Mercury boiling temperature is 357^0C and when it goes above this temperature it evaporates. Retort is in fact heated at temperatures above 600^0C reaching temperatures up to 700^0C. The entire quantity of vapors is collected in special collection systems and wet filtered under medium vacuum in retort. Mercury is the condensed and released as impure metal. Retorts also contain dense layers of carbon, filled with sulphur impregnated carbon. These layers adsorb mercury that did not condense and did not stabilize as synthetic cinnabar. Retort captures most of the extracted mercury present in the circuit as soon as it dissolved. Retorts typically recover over 99% of the mercury that is present reducing the mercury in the electrowinning sludge to levels less than 0.005% mercury.

Retort sludge is recovered, mixed with cleaning and smelting fluxes. Gases released through the smelter furnace are collected and wet filtered to recover materials in the form of particles as well as any residual mercury that may not have been distilled in retorts, but which will be released in furnace at temperatures above 1100^0C.

Active carbon is regenerated as a result of the elution process. Gases released from the regeneration kiln are also collected in case mercury was not fully diluted onto carbon and is released in the regeneration kiln due to the high temperatures above 650—700^0C. These gases are wet filtered to collect both particles and volatile mercury. Filtered emissions are reprocessed in the treatment plant and this lead to mercury being re-circulated and re-dissolved and ultimately collected in retort.

Retort Size

The Project presents variable gold and silver concentrations. At the beginning of the operation the daily gold and silver production may exceed 500 kg/day. When high silver grade ore is processed, the production is anticipated to be over 600 kg/day for short periods of time. The retort processes should be able to accommodate high quantities of precious metals. It may be anticipated that the quantities of mercury present in reality play no role in the volumetric capacity of the retort vessels. 0.32 – 2.1 kg of mercury is less than 1% of the precious metals produced in that period of time. The amounts of precious metals, particularly the silver grade, led to the selection of two individual retorts to achieve production. This allows efficient dissolution in retort and also offers a redundancy level in case one of the retorts fails.

Monitoring

A feature of the gold operations is the periodic monitoring of mercury emissions. Such monitoring is done using Drager tubes or similar which can determine very low mercury levels in air. Monitoring will be done to confirm that the mercury collection systems operate to the requirements and to confirm that the operating personnel is not exposed to high mercury levels.

It is also typical for the operating personnel working in areas where mercury may be present to do periodic blood tests to ensure that the exposure levels are low and that the operators have no mercury concentration in their blood. This is an effective and proven method to control personnel exposure to mercury contamination. Implementation of these methods ensures that both the environment and the operating personnel are protected from mercury accumulation.

3.2. Project pollution sources

After the submission of the EIA Report by coming into effect of Order No. 448/2007 Directive 2004/107/CE of the European Parliament and Council was implemented. Although upon the preparation of the report this Directive had not yet been implemented in Romania, chapter 4.2 Air includes as from page 158 tables showing modeling of long-term concentrations of hexavalent chromium, nickel, cadmium and HAP (as benz(a)pyrene) as well as a comparison of the same with the limit values provided in the respective Directive. Given the provisions of the new Order, the 2006 information was reviewed and where necessary brought up to date for compliance purposes.

Thus Appendix NE_Cap. 4.2_01 attached herewith, presents the results of the air quality impact assessment and the drawings presenting the distribution of the concentration of all regulated air pollutants and their mediation times provided under current legislation in force, taking into account only the effect of the polluting emissions generate by the Project sources in the 3 phases, i.e. development – construction, operation and closure.

Mathematical modeling of hydrocyanic acid in the TMF area yielded a maximum hourly concentration of /m^3, well below the maximum admissible limit – details in *Appendix NE_Cap 4.2_02*.

Therefore, as stated in the EIA Report, the comparison with the limit values generally indicates that the modeled values are much lower than the limits, including for arsenic. Presently, considering the letter received from the Ministry of Environment and Forests with the views of the TAC members and which requests updates on the present situation of the air emission sources and air quality in the Project area as well as updated drawing of the distributions of each of the regulated air pollutants also considering the cumulated effect of the existing and future Project emission sources in different Project development stages, RMGC initiated a monitoring program aiming to obtain the information required and interpret the same. A study which will include all updated information as requested by the TAC members will be forwarded to the Ministry of Environment and Forests in the near future.

4. Updates on Chapter 4.2 “Air”, Air Quality Management Plan

The Air Quality Management Plan does not require updating due to time or changes in the legal framework.