

National Load Despatch Centre राष्ट्रीय भार प्रेषण केंद्र

POWER SYSTEM OPERATION CORPORATION LIMITED

पॉवर सिस्टम ऑपरेशन कारपोरेशन लिमिटेड

(Government of India Enterprise/ भारत सरकार का उद्यम)

B-9, QUTUB INSTITUTIONAL AREA, KATWARIA SARAI, NEW DELHI -110016 बी-9, क़ुत्ब इन्स्टीट्यूशनल एरिया, कटवारिया सराये, न्यू दिल्ली-110016

Ref: POSOCO/NLDC/SO/Daily PSP Report

दिनांक: 04th June 2018

To,

- 1. महाप्रबंधक, पू .क्षे .भा .प्रे .के.,14 , गोल्फ क्लब रोड , कोलकाता 700033 General Manager, ERLDC, 14 Golf Club Road, Tolleygunge, Kolkata, 700033
- 2. महाप्रबंधक, ऊ. क्षे. भा. प्रे. के., 18/ ए, शहीद जीत सिंह सनसनवाल मार्ग, नई दिल्ली 110016 General Manager, NRLDC, 18-A, Shaheed Jeet Singh Marg, Katwaria Sarai, New Delhi – 110016
- 3. महाप्रबंधक, प .क्षे .भा .प्रे .के., एफ3-, एम आई डी सी क्षेत्र , अंधेरी, मुंबई -400093 General Manager, WRLDC, F-3, M.I.D.C. Area, Marol, Andheri (East), Mumbai-400093
- महाप्रबंधक, ऊ. पू. क्षे. भा. प्रे. के., डोंगतिएह, लोअर नोंग्रह , लापलंग, शिलोंग 793006
 General Manager, NERLDC, Dongteih, Lower Nongrah, Lapalang, Shillong 793006, Meghalaya
- 5. अपर महाप्रबंधक , द .क्षे .भा .प्रे .के.,29 , रेस कोर्स क्रॉस रोड, बंगलुरु -560009 Additional General Manager, SRLDC, 29, Race Course Cross Road, Bangalore-560009

Sub: Daily PSP Report for the date 03.06.2018.

महोदय/Dear Sir,

आई॰ई॰जी॰सी॰-2010 की धारा स.-5.5.1 के प्रावधान के अनुसार, दिनांक 03-जून 2018 की अखिल भारतीय प्रणाली की दैनिक ग्रिड निष्पादन रिपोर्ट रा॰भा॰प्रे॰के॰ की वेबसाइट पर उप्लब्ध है

As per article 5.5.1 of the Indian Electricity Grid Code, the daily report pertaining power supply position of All India Power System for the date 03^{rd} June 2018, is available at the NLDC website.

धन्यवाद,

पॉवर सिस्टम ऑपरेशन कारपोरेशन लिमिटेड राष्ट्रीय भार प्रेषण केंद्र, नई दिल्ली

Report for previous day **Date of Reporting** 4-Jun-18

A. Maximum Demand

	NR	WR	SR	ER	NER	Total
Demand Met during Evening Peak hrs(MW) (at 2000 hrs; from RLDCs)	49026	43879	34664	19404	2521	149493
Peak Shortage (MW)	866	96	0	0	76	1038
Energy Met (MU)	1158	1061	799	436	47	3500
Hydro Gen (MU)	291	7	28	76	18	421
Wind Gen (MU)	53	92	109			253
Solar Gen (MU)*	19.39	17.99	53.11	0.81	0.03	91
Energy Shortage (MU)	9.2	0.0	0.0	0.0	0.8	10.0
Maximum Demand Met during the day	55124	47613	38757	21047	2540	160212
(MW) & time (from NLDC SCADA)	22:58	15:42	00:00	21:18	19:17	00:00

B. Frequency Profile (%)

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Region	FVI	<49.7	49.7-49.8	49.8-49.9	<49.9	49.9-50.05	> 50.05
All India	0.037	0.00	0.22	2.52	2.74	75.03	22.22

Supply Position in State

Region	States	Max. Demand Met during the day (MW)	Shortage during maximum Demand (MW)	Energy Met (MU)	Drawal Schedule (MU)	OD(+)/UD(-) (MU)	Max OD (MW)	Energy Shortage (MU)
	Punjab	8238	0	176.8	103.2	-0.7	174	0.0
	Haryana	7743	0	160.2	115.0	1.1	216	0.1
	Rajasthan	11128	0	242.4	59.7	1.9	547	0.0
	Delhi	5833	0	111.8	91.1	-3.0	95	0.0
NR	UP	17739	0	359.5	175.6	0.8	243	0.0
	Uttarakhand	1884	0	39.6	21.1	-1.2	105	0.0
	HP	1224	0	23.7	3.6	-1.0	54	0.0
	J&K	1856	464	38.7	18.8	-3.6	152	9.1
	Chandigarh	310	0	5.2	5.7	-0.6	52	0.0
	Chhattisgarh	3219	0	73.9	17.4	-1.4	130	0.0
	Gujarat	15164	0	331.9	139.7	1.4	723	0.0
	MP	8200	0	171.3	78.8	-5.0	270	0.0
MD	Maharashtra	20003	0	443.3	132.0	-1.1	604	0.0
WR	Goa	416	0	8.6	8.1	0.0	28	0.0
	DD	311	0	7.1	6.4	0.8	44	0.0
	DNH	753	0	17.9	17.5	0.4	74	0.0
	Essar steel	374	0	7.0	6.8	0.2	179	0.0
	Andhra Pradesh	7502	0	160.0	47.2	0.9	732	0.0
	Telangana	6301	0	138.0	35.6	-1.4	404	0.0
CD	Karnataka	6841	0	146.7	43.9	-5.5	383	0.0
SR	Kerala	3072	0	62.0	51.1	0.5	189	0.0
	Tamil Nadu	11937	0	284.8	107.2	-0.8	623	0.0
	Pondy	347	0	7.2	7.7	-0.5	45	0.0
	Bihar	4767	0	91.3	87.9	0.6	435	0.0
	DVC	3079	0	70.2	-49.5	1.4	405	0.0
ED.	Jharkhand	1141	0	21.7	16.4	0.5	135	0.0
ER	Odisha	4571	0	91.8	40.1	2.1	385	0.0
	West Bengal	8113	0	159.0	33.4	3.2	445	0.0
	Sikkim	70	0	1.5	1.3	0.2	20	0.0
	Arunachal Pradesh	105	3	2.1	2.3	-0.2	52	0.0
	Assam	1633	21	29.9	25.1	0.9	204	0.6
	Manipur	141	4	2.3	2.2	0.0	29	0.0
NER	Meghalaya	268	0	4.8	1.8	-0.1	43	0.0
	Mizoram	76	1	1.6	1.3	0.0	19	0.0
	Nagaland	106	4	2.0	1.9	0.0	21	0.0
	Tripura	256	0	4.3	3.6	0.8	37	0.0

D. Transnational Exchanges (MU) - Import(+ve)/Export(-ve)

	Bhutan	Nepal	Bangladesh
Actual(MU)	11.4	-9.1	-15.2
Day peak (MW)	597.4	-443.6	-664.9

E. Import/export By Regions(in MU) - Import(+ve)/Export(-ve); OD(+)/UD(-)

E. Import export By Regions (in vic) - Impor	t(vc)/Export(-vc), (3D (1)/(0 D (-)				
	NR	WR	SR	ER	NER	TOTAL
Schedule(MU)	220.3	-183.7	31.6	-69.8	2.0	0.4
Actual(MU)	220.5	-182.3	16.0	-53.3	3.4	4.3
O/D/U/D(MU)	0.1	1.4	-15.6	16.5	1.4	3.9

F. Generation Outage(MW)

	NR	WR	SR	ER	NER	Total
Central Sector	4053	11579	7712	1545	146	25035
State Sector	7610	15491	5220	5215	50	33586
Total	11663	27070	12932	6760	196	58621

G. Sourcewise generation (MU)

	NK	WK	SK	EK	NEK	Ali India
Thermal (Coal & Lignite)	529	1071	509	440	9	2557
Hydro	291	7	29	76	18	422
Nuclear	31	30	46	0	0	107
Gas, Naptha & Diesel	24	47	17	0	21	110
RES (Wind, Solar, Biomass & Others)	85	110	192	1	0	388
Total	961	1265	794	518	48	3585
Share of RES in total generation (%)	8.87	8.66	24.19	0.28	0.11	10.83
Share of Non-fossil fuel (Hydro Nuclear and						

Share of RES in total generation (%)	8.87	8.66	24.19	0.28	0.11	10.83
Share of Non-fossil fuel (Hydro, Nuclear and	42.44	11.60	22.72	14.00	37 50	25.60
RES) in total generation (%)	42.44	11.60	33.72	14.99	37.59	25.60

H. Diversity Factor

30	1.030	tor	Fact	sity	Diver	emand	a D	Indi	All	All India Demand Diversity Factor 1.030
1.03			or	Factor	sity Factor	Diversity Factor	emand Diversity Factor	ia Demand Diversity Factor	India Demand Diversity Factor	

Diversity factor = Sum of regional maximum demands / All India maximum demand

		INTER-REGIONAL EXCHANGES Date of Reporting:						4-Jun-18
								Import=(+ve) /Export =(-ve) for NET (MU)
Sl No	Voltage Level	Line Details	Circuit	Max Import (MW)	Max Export (MW)	Import (MU)	Export (MU)	NET (MU)
Import/H	Export of	ER (With NR) GAYA-VARANASI	D/C	1	351	0.0	5.7	-5.7
2	765kV	SASARAM-FATEHPUR	S/C	184	128	0.0	0.0	0.2
3		GAYA-BALIA	S/C	0	517	0.0	10.3	-10.3
5	HVDC	ALIPURDUAR-AGRA PUSAULI B/B	S/C	0	287 48	0.0	12.2	-12.2 -1.3
6		PUSAULI-VARANASI	S/C	0	84	0.0	0.0	0.0
7		PUSAULI -ALLAHABAD	S/C	24	45	0.0	0.0	0.0
8		MUZAFFARPUR-GORAKHPUR	D/C	0	481	0.0	7.2	-7.2
9	400 kV	PATNA-BALIA	Q/C	0	728	0.0	13.8	-13.8
10		BIHARSHARIFF-BALIA MOTIHARI-GORAKHPUR	D/C D/C	5	307 283	0.0	5.5 4.8	-5.5 -4.8
12		BIHARSHARIFF-VARANASI	D/C D/C	254	34	0.0	1.1	-4.8
13	220 kV	PUSAULI-SAHUPURI	S/C	0	202	0.0	4.1	-4.1
14		SONE NAGAR-RIHAND	S/C	0	0	0.0	0.0	0.0
15	132 kV	GARWAH-RIHAND	S/C	35	0	0.3	0.0	0.3
16		KARMANASA-SAHUPURI	S/C	0	39	0.0	0.0	0.0
17		KARMANASA-CHANDAULI	S/C	0	0 ER-NR	0.0 0.5	0.0 66.0	0.0 -65.5
	Export of	ER (With WR)			<u> </u>	I		
18	765 kV	JHARSUGUDA-DHARAMJAIGARH S/C	D/C	931	0	17.2	0.0	17.2
19		NEW RANCHI-DHARAMJAIGARH	D/C	583	80	5.8	0.0	5.8
20	400 kV	JHARSUGUDA-RAIGARH RANCHI-SIPAT	Q/C D/C	1117 292	0	17.7 4.2	0.0	17.7 4.2
22	AA0 -	BUDHIPADAR-RAIGARH	S/C	111	160	0.7	0.0	0.7
23	220 kV	BUDHIPADAR-KORBA	D/C	64	7 ER-WR	1.8 47.4	0.0	1.8 47.4
	T -	ER (With SR)	T					
24		ANGUL-SRIKAKULAM	D/C	0.0	1491.8	0.0	22.9	-22.9
25 26	HVDC LINK	JEYPORE-GAZUWAKA B/B TALCHER-KOLAR BIPOLE	D/C D/C	0.0	568.2 1187.2	0.0	13.5 23.0	-13.5 -23.0
27	400 kV	TALCHER-I/C	D/C	857.2	0.8	0.0	14.3	-14.3
28	220 kV	BALIMELA-UPPER-SILERRU	S/C	0.0	0.0	0.0	0.0	0.0
	_				ER-SR	0.0	59.4	-59.4
Import/I	Export of	f ER (With NER) BINAGURI-BONGAIGAON	D/C	0	489	0.0	8.4	-8
30	400 kV	ALIPURDUAR-BONGAIGAON	D/C D/C	96	244	0.0	2.8	-3
31	220 kV	ALIPURDUAR-SALAKATI	D/C	0	166	0.0	2.8	-3
Import/I	T -	NER (With NR) BISWANATH CHARIALI-AGRA	-	0	ER-NER 500	0.0	11.3	-14.0 -11.3
Impost/T	Evnort of	WD (With ND)			NER-NR	0.0	11.3	-11.3
33	vxport of	WR (With NR) CHAMPA-KURUKSHETRA	D/C	0	1605	0.0	31.4	-31.4
34	HVDC	V'CHAL B/B	D/C	250	0	0.0	4.3	-4.3
35		APL -MHG	D/C	0	1814	0.0	35.2	-35.2
36		GWALIOR-AGRA	D/C	0	1235	0.0	23.5	-23.5
37	- 	PHAGI-GWALIOR	D/C	0	1338	0.0	27.7	-27.7
38	765 kV	JABALPUR-ORAI GWALIOR-ORAI	D/C S/C	320	1215	0.0 5.1	0.0	-21.0 5.1
40	1	SATNA-ORAI	S/C S/C	0	1812	0.0	37.2	-37.2
41		ZERDA-KANKROLI	S/C	432	0	7.5	0.0	7.5
42	400 kV	ZERDA -BHINMAL	S/C	436	0	7.2	0.0	7.2
	7 4()() K V	_	S/C	949	_	20.1	0.0	20.1
43	1 400 KV	V'CHAL -RIHAND			0			. 1
44	400 KV	RAPP-SHUJALPUR	D/C	0	218	0	1	-1
	-				218 94		1 0.6	-0.6
44 45	220 kV	RAPP-SHUJALPUR BADOD-KOTA	D/C S/C	0 22	218	0 0.1	1	
44 45 46	-	RAPP-SHUJALPUR BADOD-KOTA BADOD-MORAK	D/C S/C S/C	0 22 0	218 94 115	0 0.1 0.0	1 0.6 1.4	-0.6 -1.4
44 45 46 47	- 220 kV	RAPP-SHUJALPUR BADOD-KOTA BADOD-MORAK MEHGAON-AURAIYA	D/C S/C S/C S/C	0 22 0 16	218 94 115 25 51 0	0 0.1 0.0 0.0 0.0 0.0	1 0.6 1.4 0.1 0.7 0.0	-0.6 -1.4 -0.1 -0.7 0.0
44 45 46 47 48 49	220 kV	RAPP-SHUJALPUR BADOD-KOTA BADOD-MORAK MEHGAON-AURAIYA MALANPUR-AURAIYA GWALIOR-SAWAI MADHOPUR WR (With SR)	D/C S/C S/C S/C S/C	0 22 0 16 0	218 94 115 25 51 0 WR-NR	0 0.1 0.0 0.0 0.0 0.0 40.1	1 0.6 1.4 0.1 0.7 0.0 184.4	-0.6 -1.4 -0.1 -0.7 0.0 -144.4
44 45 46 47 48 49 Import/I 50	220 kV 132kV Export of	RAPP-SHUJALPUR BADOD-KOTA BADOD-MORAK MEHGAON-AURAIYA MALANPUR-AURAIYA GWALIOR-SAWAI MADHOPUR WR (With SR) BHADRAWATI B/B	D/C S/C S/C S/C S/C S/C	0 22 0 16 0 0	218 94 115 25 51 0 WR-NR	0 0.1 0.0 0.0 0.0 0.0 40.1	1 0.6 1.4 0.1 0.7 0.0 184.4	-0.6 -1.4 -0.1 -0.7 0.0 -144.4
44 45 46 47 48 49 Import/I 50 51	220 kV 132kV Export of	RAPP-SHUJALPUR BADOD-KOTA BADOD-MORAK MEHGAON-AURAIYA MALANPUR-AURAIYA GWALIOR-SAWAI MADHOPUR WR (With SR) BHADRAWATI B/B BARSUR-L.SILERU	D/C S/C S/C S/C S/C	0 22 0 16 0 0	218 94 115 25 51 0 WR-NR	0 0.1 0.0 0.0 0.0 0.0 40.1	1 0.6 1.4 0.1 0.7 0.0 184.4	-0.6 -1.4 -0.1 -0.7 0.0 -144.4 0.0 0.0
44 45 46 47 48 49 Import/I 50 51 52	220 kV 132kV Export of	RAPP-SHUJALPUR BADOD-KOTA BADOD-MORAK MEHGAON-AURAIYA MALANPUR-AURAIYA GWALIOR-SAWAI MADHOPUR WR (With SR) BHADRAWATI B/B BARSUR-L.SILERU SOLAPUR-RAICHUR	D/C S/C S/C S/C S/C S/C D/C	0 22 0 16 0 0	218 94 115 25 51 0 WR-NR 0 0 684	0 0.1 0.0 0.0 0.0 0.0 40.1	1 0.6 1.4 0.1 0.7 0.0 184.4 0.0 0.0 3.8	-0.6 -1.4 -0.1 -0.7 0.0 -144.4 0.0 0.0 -3.8
44 45 46 47 48 49 Import/I 50 51	220 kV 132kV Export of HVDC LINK 765 kV	RAPP-SHUJALPUR BADOD-KOTA BADOD-MORAK MEHGAON-AURAIYA MALANPUR-AURAIYA GWALIOR-SAWAI MADHOPUR WR (With SR) BHADRAWATI B/B BARSUR-L.SILERU	D/C S/C S/C S/C S/C	0 22 0 16 0 0	218 94 115 25 51 0 WR-NR	0 0.1 0.0 0.0 0.0 0.0 40.1	1 0.6 1.4 0.1 0.7 0.0 184.4	-0.6 -1.4 -0.1 -0.7 0.0 -144.4 0.0 0.0
44 45 46 47 48 49 Import/I 50 51 52 53	220 kV 132kV Export of HVDC LINK 765 kV	RAPP-SHUJALPUR BADOD-KOTA BADOD-MORAK MEHGAON-AURAIYA MALANPUR-AURAIYA GWALIOR-SAWAI MADHOPUR WR (With SR) BHADRAWATI B/B BARSUR-L.SILERU SOLAPUR-RAICHUR WARDHA-NIZAMABAD	D/C S/C S/C S/C S/C S/C D/C	0 22 0 16 0 0 0 855 0	218 94 115 25 51 0 WR-NR 0 0 684 1447	0 0.1 0.0 0.0 0.0 0.0 40.1	1 0.6 1.4 0.1 0.7 0.0 184.4 0.0 0.0 3.8 9.7	-0.6 -1.4 -0.1 -0.7 0.0 -144.4 0.0 0.0 -3.8 -9.7
44 45 46 47 48 49 Import/I 50 51 52 53 54	220 kV 132kV Export of HVDC LINK 765 kV	RAPP-SHUJALPUR BADOD-KOTA BADOD-MORAK MEHGAON-AURAIYA MALANPUR-AURAIYA GWALIOR-SAWAI MADHOPUR WR (With SR) BHADRAWATI B/B BARSUR-L.SILERU SOLAPUR-RAICHUR WARDHA-NIZAMABAD KOLHAPUR-KUDGI	D/C S/C S/C S/C S/C S/C D/C D/C D/C	0 22 0 16 0 0 0 855 0 1010 0	218 94 115 25 51 0 WR-NR 0 0 684 1447 0	0 0.1 0.0 0.0 0.0 0.0 40.1 0.0 0.0 0.0 0.0 18.8	1 0.6 1.4 0.1 0.7 0.0 184.4 0.0 0.0 3.8 9.7 0.0	-0.6 -1.4 -0.1 -0.7 0.0 -144.4 0.0 0.0 0.0 -3.8 -9.7 18.8
44 45 46 47 48 49 Import/I 50 51 52 53 54 55	220 kV 132kV Export of HVDC LINK 765 kV 400 kV	RAPP-SHUJALPUR BADOD-KOTA BADOD-MORAK MEHGAON-AURAIYA MALANPUR-AURAIYA GWALIOR-SAWAI MADHOPUR WR (With SR) BHADRAWATI B/B BARSUR-L.SILERU SOLAPUR-RAICHUR WARDHA-NIZAMABAD KOLHAPUR-KUDGI KOLHAPUR-CHIKODI	D/C S/C S/C S/C S/C S/C D/C D/C D/C D/C	0 22 0 16 0 0 0 855 0 1010	218 94 115 25 51 0 WR-NR 0 0 684 1447 0 0 0	0 0.1 0.0 0.0 0.0 0.0 40.1 0.0 0.0 0.0 18.8 0.0 0.0 1.5	1 0.6 1.4 0.1 0.7 0.0 184.4 0.0 0.0 3.8 9.7 0.0 0.0 0.0	-0.6 -1.4 -0.1 -0.7 0.0 -144.4 0.0 0.0 -3.8 -9.7 18.8 0.0 0.0 1.5
44 45 46 47 48 49 Import/I 50 51 52 53 54 55 56	220 kV 132kV Export of HVDC LINK 765 kV 400 kV	RAPP-SHUJALPUR BADOD-KOTA BADOD-MORAK MEHGAON-AURAIYA MALANPUR-AURAIYA GWALIOR-SAWAI MADHOPUR WR (With SR) BHADRAWATI B/B BARSUR-L.SILERU SOLAPUR-RAICHUR WARDHA-NIZAMABAD KOLHAPUR-KUDGI KOLHAPUR-CHIKODI PONDA-AMBEWADI XELDEM-AMBEWADI	D/C S/C S/C S/C S/C S/C S/C S/C S/C S/C S	0 22 0 16 0 0 0 855 0 1010 0 73	218 94 115 25 51 0 WR-NR 0 684 1447 0 0 0 WR-SR	0 0.1 0.0 0.0 0.0 0.0 40.1 0.0 0.0 0.0 0.0 18.8 0.0 0.0	1 0.6 1.4 0.1 0.7 0.0 184.4 0.0 0.0 3.8 9.7 0.0 0.0	-0.6 -1.4 -0.1 -0.7 0.0 -144.4 0.0 0.0 -3.8 -9.7 18.8 0.0 0.0 0.0
44 45 46 47 48 49 Import/I 50 51 52 53 54 55 56	220 kV 132kV Export of HVDC LINK 765 kV 400 kV	RAPP-SHUJALPUR BADOD-KOTA BADOD-MORAK MEHGAON-AURAIYA MALANPUR-AURAIYA GWALIOR-SAWAI MADHOPUR WR (With SR) BHADRAWATI B/B BARSUR-L.SILERU SOLAPUR-RAICHUR WARDHA-NIZAMABAD KOLHAPUR-KUDGI KOLHAPUR-CHIKODI PONDA-AMBEWADI XELDEM-AMBEWADI	D/C S/C S/C S/C S/C S/C S/C S/C S/C S/C S	0 22 0 16 0 0 0 855 0 1010 0 73	218 94 115 25 51 0 WR-NR 0 0 684 1447 0 0 0	0 0.1 0.0 0.0 0.0 0.0 40.1 0.0 0.0 0.0 18.8 0.0 0.0 1.5	1 0.6 1.4 0.1 0.7 0.0 184.4 0.0 0.0 3.8 9.7 0.0 0.0 0.0	-0.6 -1.4 -0.1 -0.7 0.0 -144.4 0.0 0.0 -3.8 -9.7 18.8 0.0 0.0 1.5
44 45 46 47 48 49 Import/I 50 51 52 53 54 55 56 57	220 kV 132kV Export of HVDC LINK 765 kV 400 kV	RAPP-SHUJALPUR BADOD-KOTA BADOD-MORAK MEHGAON-AURAIYA MALANPUR-AURAIYA GWALIOR-SAWAI MADHOPUR WR (With SR) BHADRAWATI B/B BARSUR-L.SILERU SOLAPUR-RAICHUR WARDHA-NIZAMABAD KOLHAPUR-KUDGI KOLHAPUR-CHIKODI PONDA-AMBEWADI XELDEM-AMBEWADI	D/C S/C S/C S/C S/C S/C S/C S/C S/C S/C S	0 22 0 16 0 0 0 855 0 1010 0 73	218 94 115 25 51 0 WR-NR 0 684 1447 0 0 0 WR-SR	0 0.1 0.0 0.0 0.0 0.0 40.1 0.0 0.0 0.0 18.8 0.0 0.0 1.5	1 0.6 1.4 0.1 0.7 0.0 184.4 0.0 0.0 3.8 9.7 0.0 0.0 0.0	-0.6 -1.4 -0.1 -0.7 0.0 -144.4 0.0 0.0 -3.8 -9.7 18.8 0.0 0.0 1.5 6.8