



No	321
Date	19-Jul-12
B2-bank Equipment	
Booster Transformer 2 (phase B)	
<hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/>	



No	322
Date	19-Jul-12
B2-bank Equipment	
Booster Transformer 2 (phase B)	
<hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/>	



No	323
Date	19-Jul-12
B2-bank Equipment	
Booster Transformer 2 (phase C)	
<hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/>	



No 324

Date 19-Jul-12

B2-bank Equipment

Booster Transformer 2



No 325

Date 19-Jul-12

B2-bank Equipment

Booster Transformer 2 (phase A)



No 326

Date 19-Jul-12

B2-bank Equipment

230kV Arrester (LA2)



No 327

Date 19-Jul-12

B2-bank Equipment

230kV Circuit Breaker (152-B2)



No 328

Date 19-Jul-12

B2-bank Equipment

230kV Disconnecting Switch (189-B2)



No 329

Date 19-Jul-12



No 401

Date 19-Jul-12

132kV N/L 1L Equipment

132kV Disconnecting Switch (128-3)



No 402

Date 19-Jul-12

132kV N/L 1L Equipment

132kV Disconnecting Switch (128-3)



No 403

Date 19-Jul-12

132kV N/L 1L Equipment

132kV Disconnecting Switch (228-3)



No 401

Date 19-Jul-12

Equipment of 132kV N/L 1L

132kV Disconnecting Switch (228-3)



No 402

Date 19-Jul-12

Equipment of 132kV N/L 1L

Circuit Breaker (152-3)



No 403

Date 19-Jul-12

Equipment of 132kV N/L 1L

Circuit Breaker (152-3)

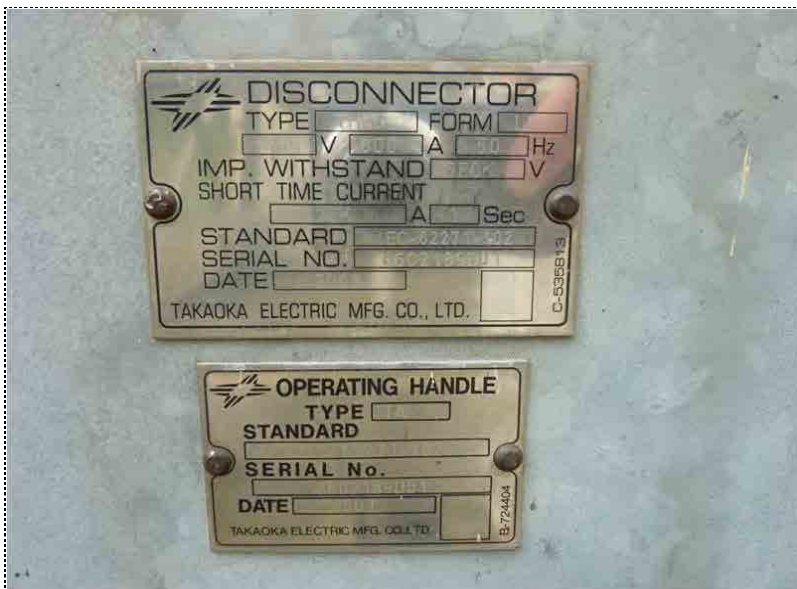


No 404

Date 19-Jul-12

Equipment of 132kV N/L 1L

Disconnecting Switch (289-3)

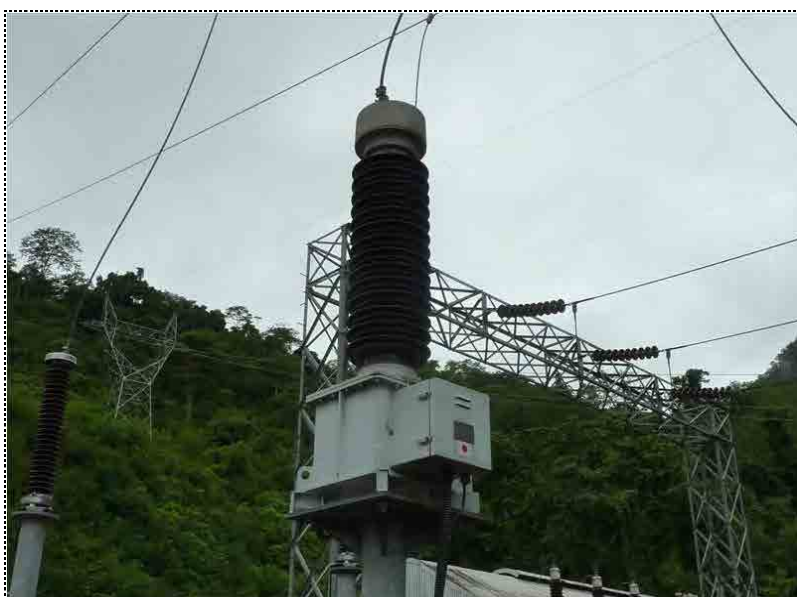


No 405

Date 19-Jul-12

Equipment of 132kV N/L 1L

Disconnecting Switch (289-3)

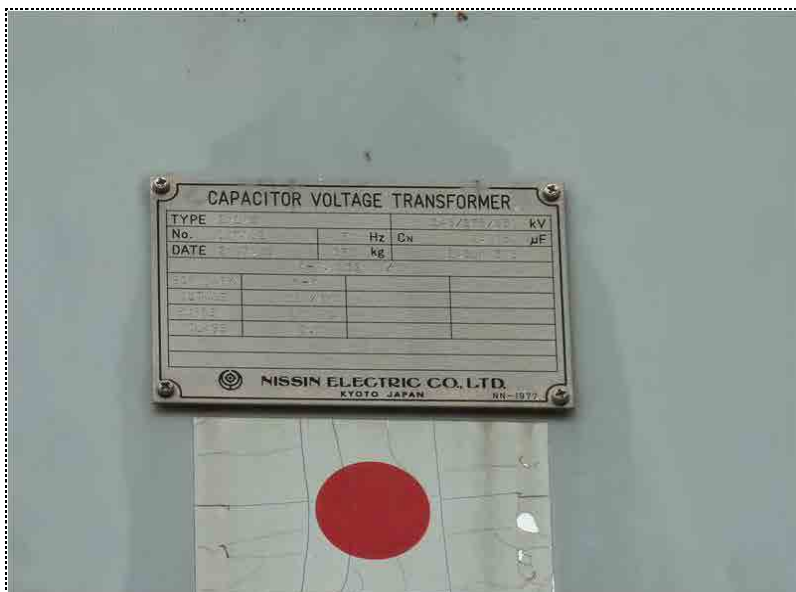


No 406

Date 19-Jul-12

Equipment of 132kV N/L 1L

Capacitor Voltage Transformer (CVT)



No 407

Date 19-Jul-12

Equipment of 132kV N/L 1L

Capacitor Voltage Transformer (CVT)



No 408

Date 19-Jul-12

Equipment of 132kV N/L 1L

Arrester (LA)



No 409

Date 19-Jul-12

Equipment of 132kV N/L 1L

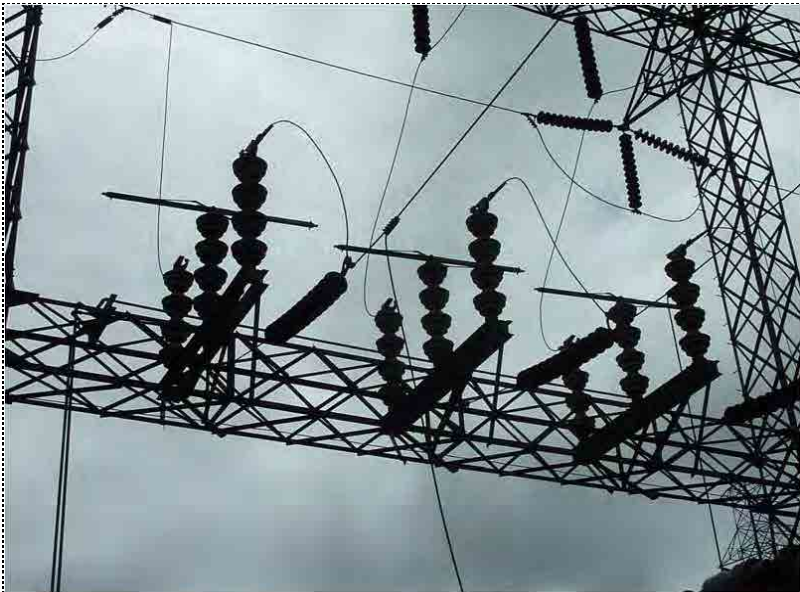
Arrester (LA)



No 501

Date 19-Jul-12

Equipment of 132kV N/L 2L



No 502

Date 19-Jul-12

Equipment of 132kV N/L 2L

132kV Disconnecting Switch (128)



No 503

Date 19-Jul-12

Equipment of 132kV N/L 2L

132kV Disconnecting Switch (228)



No 504

Date 19-Jul-12

Equipment of 132kV N/L 2L

132kV Circuit Breaker (152-1)



No 505

Date 19-Jul-12

Equipment of 132kV N/L 2L

132kV Circuit Breaker (152-1)



No 506

Date 19-Jul-12

Equipment of 132kV N/L 2L

132kV Circuit Breaker (152-1)

Control panel



No 507

Date 19-Jul-12

Equipment of 132kV N/L 2L

132kV Circuit Breaker (152-1)

Counter



No 508

Date 19-Jul-12

Equipment of 132kV N/L 2L

132kV Current Transformer



No 509

Date 19-Jul-12

Equipment of 132kV N/L 2L

132kV Current Transformer

Phase A

Oil leakage was repaired



No 510

Date 19-Jul-12

Equipment of 132kV N/L 2L

132kV Disconnecting Switch (289)

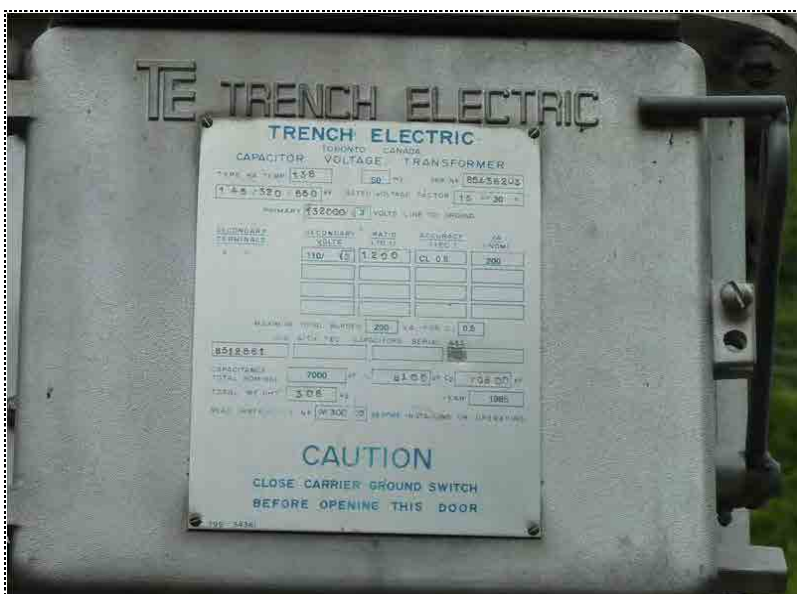


No 511

Date 19-Jul-12

Equipment of 132kV N/L 2L

132kV Capacitor Voltage Transformer



No 512

Date 19-Jul-12

Equipment of 132kV N/L 2L

132kV Capacitor Voltage Transformer



No 513

Date 19-Jul-12

Equipment of 132kV N/L 2L

132kV Capacitor Voltage Transformer
Phase A



No 514

Date 19-Jul-12

Equipment of 132kV N/L 2L

132kV Capacitor Voltage Transformer
Phase B

写真

No 515

Date 19-Jul-12



No 601

Date 19-Jul-12

Incoming BPS1 Equipment

132kV Disconnecting Switch

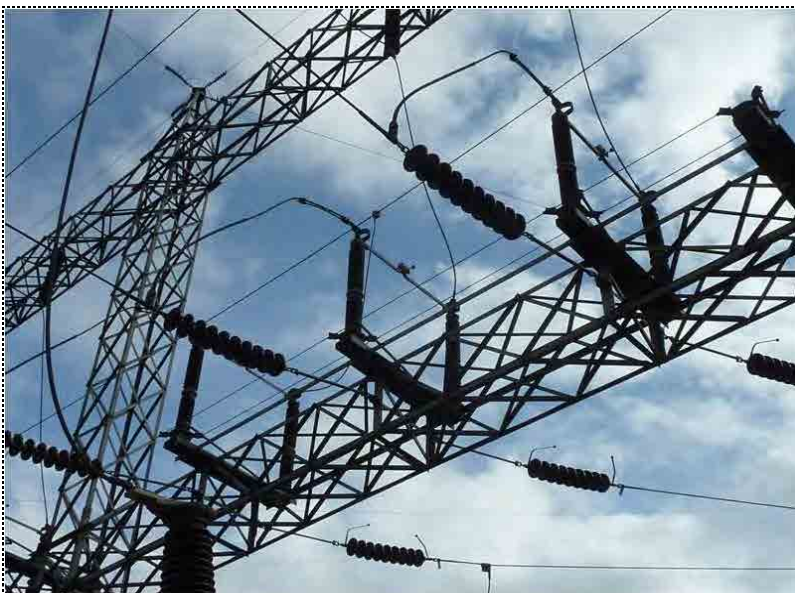


No 602

Date 19-Jul-12

Incoming BPS1 Equipment

132kV Disconnecting Switch



No 603

Date 19-Jul-12

Incoming BPS1 Equipment

132kV Disconnecting Switch

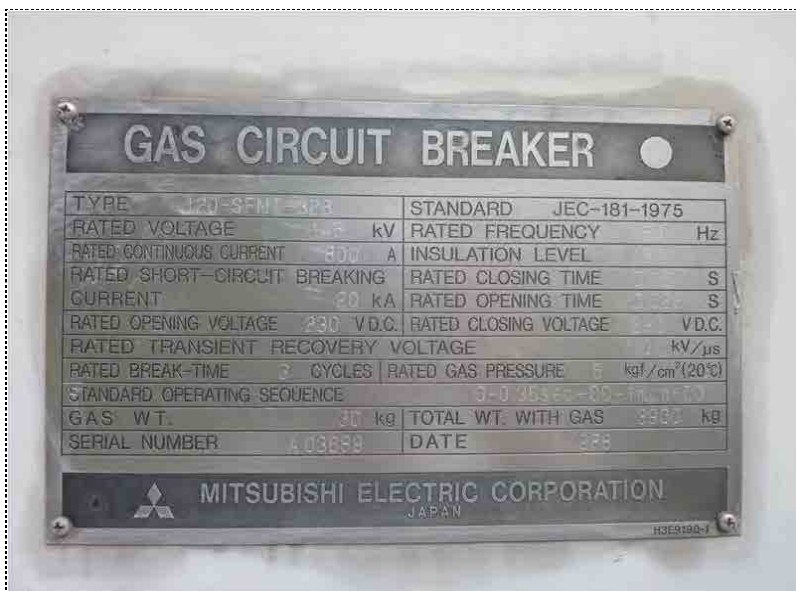


No 604

Date 19-Jul-12

Incoming BPS1 Equipment

132kV Circuit Breaker



No 605

Date 19-Jul-12

Incoming BPS1 Equipment

132kV Circuit Breaker



No 606

Date 19-Jul-12

Incoming BPS1 Equipment

132kV Disconnecting Switch



No 610

Date 19-Jul-12

Incoming BPS1 Equipment

132kV Coupling capacitor



写真

No 611

Date 19-Jul-12



写真

No 612

Date 19-Jul-12



No 701

Date 19-Jul-12

132kV INTERBUS Equipment

132kV Disconnecting Switch



No 702

Date 19-Jul-12

132kV INTERBUS Equipment

132kV Disconnecting Switch



No 703

Date 19-Jul-12

132kV INTERBUS Equipment

132kV Circuit Breaker



No 704

Date 19-Jul-12

132kV INTERBUS Equipment

132kV Arrester (LA)



No 705

Date 19-Jul-12

132kV INTERBUS Equipment

INTERBUS Transformer



No 706

Date 19-Jul-12

132kV INTERBUS Equipment

INTERBUS Transformer



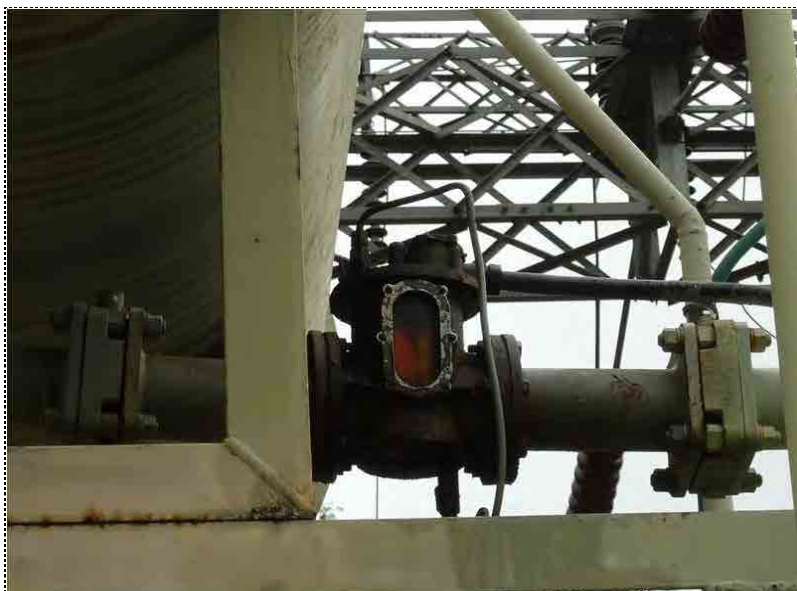
No 707

Date 19-Jul-12

132kV INTERBUS Equipment

INTERBUS Transformer

The INTERBUS transformer was equipped with LTC.



No 708

Date 19-Jul-12

132kV INTERBUS Equipment

INTERBUS Transformer

Oil was leaked from the buchholtz relay.



No 709

Date 19-Jul-12

132kV INTERBUS Equipment

INTERBUS Transformer



No 801

Date 19-Jul-12

132kV BUS Equipment

132kV Capacitor Voltage Transformer
for BUS-A



No 802

Date 19-Jul-12

132kV BUS Equipment

132kV Capacitor Voltage Transformer
for BUS-A



No 803

Date 19-Jul-12

132kV BUS Equipment

132kV Capacitor Voltage Transformer
for BUS-B



No 901

Date 19-Jul-12

11kV House Service Equipment

11kV OCB (252H) & 400V Load Center



No 902

Date 19-Jul-12

11kV House Service Equipment

11kV OCB (252H)

Oil was leaked from the arc-suppression tank.



No 903

Date 19-Jul-12

11kV House Service Equipment

11kV OCB (252H)



No 904

Date 19-Jul-12

11kV House Service Equipment

11kV/11kV Tie transformer

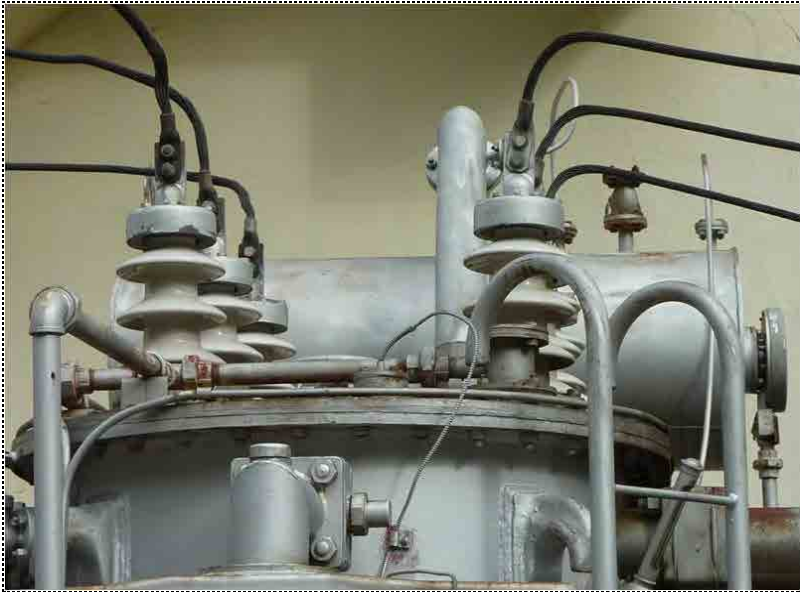


No 905

Date 19-Jul-12

11kV House Service Equipment

11kV/11kV Tie transformer



No 906

Date 19-Jul-12

11kV House Service Equipment

11kV/11kV Tie transformer



No 907

Date 19-Jul-12

11kV House Service Equipment

11kV/11kV Tie transformer

Oil has been leaked from joint parts.



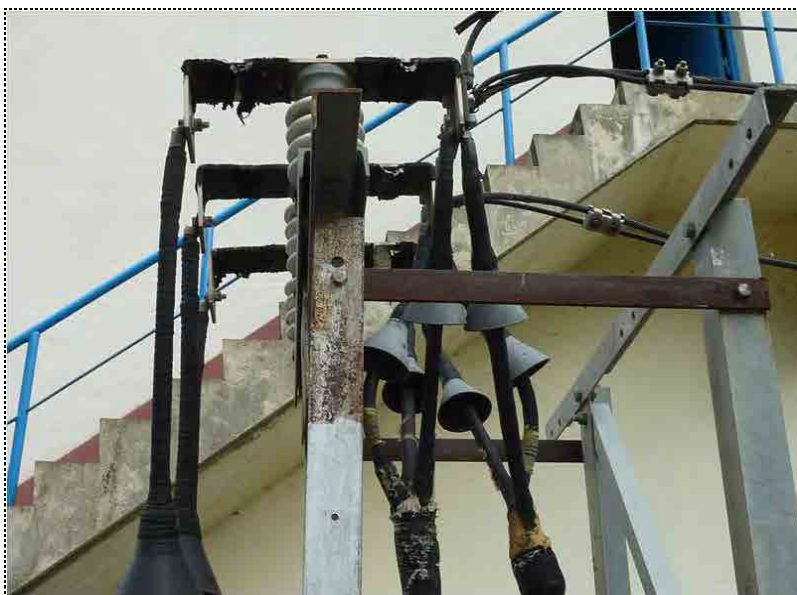
No 908

Date 19-Jul-12

11kV House Service Equipment

11kV/11kV Tie transformer

A thermometer cannot be read
due to the discoloration.



No 909

Date 19-Jul-12

11kV House Service Equipment

11kV/11kV Tie transformer



No 910

Date 19-Jul-12

11kV House Service Equipment

11kV Step Voltage Regulator



No 911

Date 19-Jul-12

11kV House Service Equipment

11kV Step Voltage Regulator



No 912

Date 19-Jul-12

11kV House Service Equipment

11kV Step Voltage Regulator

The heavy oil leakage was confirmed



No 913

Date 19-Jul-12

11kV House Service Equipment

11kV Circuit Breaker (252H1)

Empty lines for additional information.



No 914

Date 19-Jul-12

11kV House Service Equipment

11kV Circuit Breaker (252H1)

Specification cannot be confirmed because of no nameplate.

Empty lines for additional information.



No 915

Date 19-Jul-12

11kV House Service Equipment

11kV Circuit Breaker (252H1)

These relays seem to be OC relay.

Empty lines for additional information.



No 916

Date 19-Jul-12

11kV House Service Equipment

11kV Power Center Cubicle



No 917

Date 19-Jul-12

11kV House Service Equipment

11kV Power Center Cubicle



No 918

Date 19-Jul-12

11kV House Service Equipment

11kV Power Center Cubicle



No 919

Date 19-Jul-12

11kV House Service Equipment

11kV Power Center Cubicle



No 920

Date 19-Jul-12

11kV House Service Equipment

11kV Power Center Cubicle



No 921

Date 19-Jul-12

11kV House Service Equipment

11kV Power Center Cubicle



No 922

Date 19-Jul-12

11kV House Service Equipment

11kV Power Center Cubicle

The oil leakage was confirmed.



No 923

Date 19-Jul-12

11kV House Service Equipment

11kV Power Center Cubicle



No 924

Date 19-Jul-12



No 925

Date 19-Jul-12

11kV/400V House Transformer



No 926

Date 19-Jul-12

11kV/400V House Transformer

The oil leakage was confirmed at No.1 House Transformer.

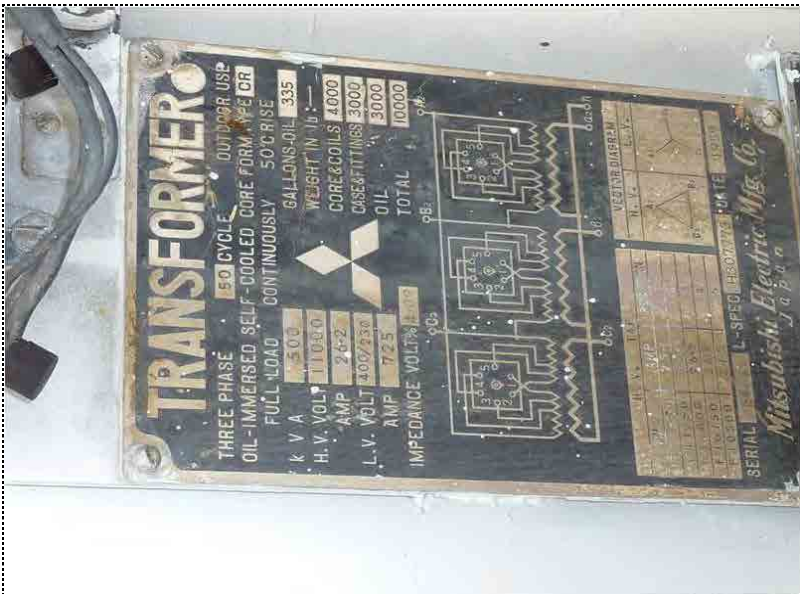


No 927

Date 19-Jul-12

11kV/400V House Transformer

The oil leakage was confirmed at No.2 House Transformer.



No 928

Date 19-Jul-12

11kV/400V House Transformer



No 929

Date 19-Jul-12

11kV/400V House Transformer



No 930

Date 19-Jul-12

400V Load Center



No 931

Date 19-Jul-12

400V Load Center



No 932

Date 19-Jul-12

400V Load Center



No 933

Date 19-Jul-12



No 1001

Date 19-Jul-12

Others

Entrance of Cooling pump room for
Booster Tr.



No 1002

Date 19-Jul-12

Others

Cooling pump system for Booster Tr.



No 1003

Date 19-Jul-12

Others

Cooling pump system for Booster Tr.



No 1004

Date 19-Jul-12

Others

Control panel for Cooling pump was aged deterioration.



No 1005

Date 19-Jul-12

Others

Cooling pump system for Booster Tr.



No 1006

Date 19-Jul-12

Others

Control panel of Cooling pump



No 1007

Date 19-Jul-12

Others

Rectifier panel (Left side)



No 1008

Date 19-Jul-12

Others

Another Rectifier panel (Right side)



No 1009

Date 19-Jul-12

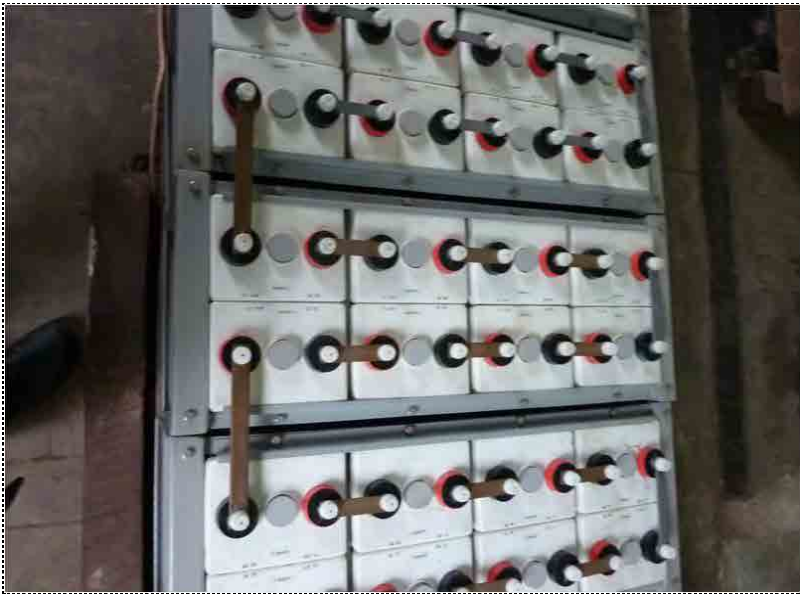
Others

Rectifier panel (Left side)

Some parts were removed.



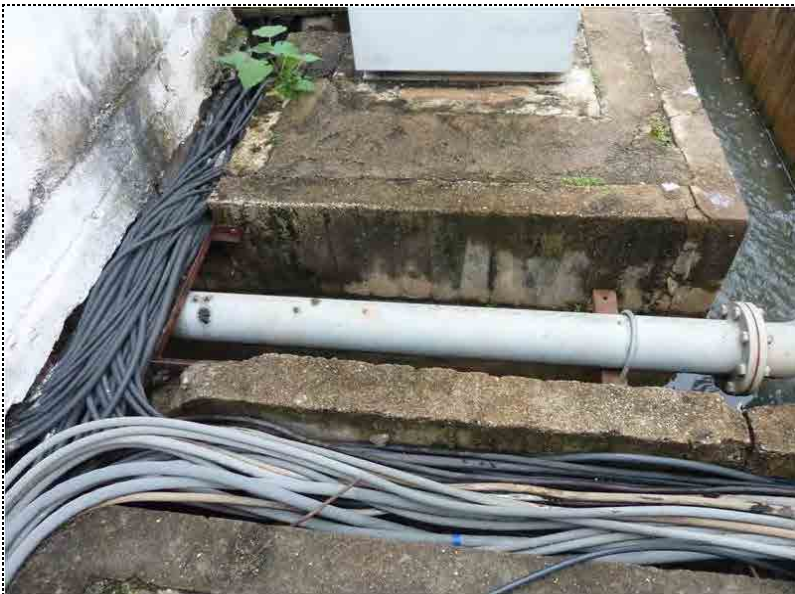
No	1010
Date	19-Jul-12
Others	
Battery	
110cell - 2set	



No	1011
Date	19-Jul-12
Others	
Battery	



No	1012
Date	19-Jul-12
Others	
Battery	
name plate	

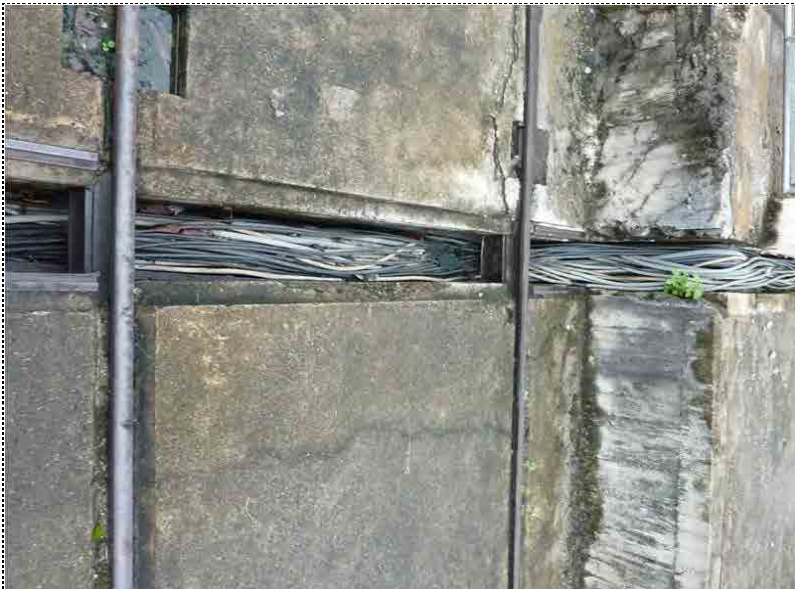


No 1013

Date 19-Jul-12

Others

Control cables
near the 230kV Booster Transformer



No 1014

Date 19-Jul-12

Others

Control cables
near the 230kV Booster Transformer



No 1015

Date 19-Jul-12

Others

Control cables
near the 230kV Booster Transformer
Cable sheathing was deteriorated.

ANNEX 4

CIVIL & METAL FACILITY

The Second Preparatory Survey on the Project for Rehabilitation of
BALUCHAUNG NO.2 Hydropower Plant
in Republic of the Union of MYANMAR

Check list of Site Inspection for Civil & Metal Facility

REMARKS ○: Good condition
 △: Caution
 ×: Consider to countermeasure
 ND: No data (with detail damaged contrition and drawings like that)

1. Butterfly valve

1-1. Packing of butterfly valve for LPPL No.1

Inspection in 11&14-Jul-2012

Items		Results	Photo No.
1	Water leakage	ND	-
2	Difference between packing and pipe (packing condition)	ND	-
3	Designed drawing	○	-
4	Past repair record	When the inside of LPPL No.1 was painted from 8 August 2010 to 22 January 2011, the painting works could not be conducted due to water leakage from valve packing of the butterfly valve for LPPL No.1 at first. Therefore, the six (6) turbine-generators were stopped and drainage works of No.2 poundage was done for one day. After that, its sealing works were carried out. Although the painting works were started under the above conditions, the sealing material was broken in the middle of them. After that, damaged valve packing has not been repaired. According to the photo taken in 8 August 2010, the damaged condition was confirmed.	1-3
5	Others	Outside condition is no problem.	-

1-2. Packing of butterfly valve for Penstock No.1

Inspection in 11&14-Jul-2012

Items		Results	Photo No.
1	Water leakage	ND	-
2	Difference between packing and pipe (packing condition)	ND	-
3	Designed drawing	○	-
4	Past repair record	None	-
5	Others	Outside condition is no problem.	-

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in Republic of the Union of MYANMAR

1-3. Packing of butterfly valve for LPPL No.2

Inspection in 11&14-Jul-2012

Items	Results	Photo No.
1 Water leakage	ND	-
2 Difference between packing and pipe (packing condition)	ND	-
3 Designed drawing	○	-
4 Past repair record	None	-
5 Others	Outside condition is no problem.	-

1-4. Packing of butterfly valve for Penstock No.2

Inspection in 11&14-Jul-2012

Items	Results	Photo No.
1 Water leakage	ND	-
2 Difference between packing and pipe (packing condition)	ND	-
3 Designed drawing	○	-
4 Past repair record	None	-
5 Others	Outside condition is no problem.	-

2. LPPL

2-1. Rocker support between No.1 and No.2 anchor block of LPPL No.1

Inspection in 9&11-Jul-2012

Items	Results	Photo No.
1 Rocker support No.	S3	4
2 Right side condition	None	-
3 Left side condition	Movement to the upstream	5
4 Past repair record	None	-
5 Others	When the inside of LPPL No.1 was painted from 8 August 2010 to 22 January 2011, maintenance staffs tried to repair the damaged rocker support by a jack and a chain block. However, it has not been completed yet. Measurement for the repair	-

Items	Results	Photo No.
1 Rocker support No.	S4	-
2 Right side condition	Movement to the upstream	6
3 Left side condition	Movement to the downstream	7
4 Past repair record	None	-

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in Republic of the Union of MYANMAR

5	Others	Measurement for the repair	-
Items		Results	Photo No.
1	Rocker support No.	S5	-
2	Right side condition	Movement to the upstream	8
3	Left side condition	Movement to the upstream	9
4	Past repair record	None	-
5	Others	Measurement for the repair	-

2-2. Rocker support between No.5 and No.6 anchor block of LPPL No.1

Inspection in 9&11-Jul-2012

Items		Results	Photo No.
1	Rocker support No.	S49	-
2	Right side condition	Movement to the upstream	10
3	Left side condition	Movement to the upstream	11
4	Past repair record	None	-
5	Others	The upstream rocker support of S48 is structural steel type. Measurement for the repair	12

Items		Results	Photo No.
1	Rocker support No.	S50	-
2	Right side condition	None	-
3	Left side condition	Movement to the downstream	13
4	Past repair record	None	-
5	Others	Measurement for the repair	-

Items		Results	Photo No.
1	Rocker support No.	S51	-
2	Right side condition	Movement to the upstream	14
3	Left side condition	Movement to the upstream	15
4	Past repair record	None	-
5	Others	Measurement for the repair	-

Items		Results	Photo No.
1	Rocker support No.	S52	-
2	Right side condition	Movement to the downstream	16
3	Left side condition	Movement to the downstream	17

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in Republic of the Union of MYANMAR

4	Past repair record	None	-
5	Others	Measurement for the repair	-

Items		Results	Photo No.
1	Rocker support No.	S53	-
2	Right side condition	None	-
3	Left side condition	Movement to the downstream	18
4	Past repair record	None	-
5	Others	Measurement for the repair	-

Items		Results	Photo No.
1	Rocker support No.	S54	-
2	Right side condition	Movement to the downstream	19
3	Left side condition	None	-
4	Past repair record	None	-
5	Others	Measurement for the repair	-

Items		Results	Photo No.
1	Rocker support No.	S55	-
2	Right side condition	None	-
3	Left side condition	Movement to the downstream	20
4	Past repair record	None	-
5	Others	Measurement for the repair	21

3. Penstock

3-1. Rocker support between No.1 and No.2 anchor block of Penstock No.1

Inspection in 7&10-Jul-2012

Items		Results	Photo No.
1	Rocker support No.	S71	-
2	Right side condition	Movement to the downstream	22
3	Left side condition	Ditto	23
4	Past repair record	According to the JICA Expert report in 2000, it has been reported that only right side of rocker support was damaged.	-
5	Other	Base concrete of right side of rocker support has some cracks, which go on from anchor plate to downstream surface. According to its drawing, the cracks are located in the	24&25

The Second Preparatory Survey on the Project for Rehabilitation of
BALUCHAUNG NO.2 Hydropower Plant
in Republic of the Union of MYANMAR

		joint between concrete surrounding base plate and base reinforced concrete.	
		Measurement for the repair	
Items		Results	Photo No.
1	Rocker support No.	S72	-
2	Right side condition	None	-
3	Left side condition	Movement to the downstream	26
4	Past repair record	None	-
5	Others	Measurement for the repair	-

Items		Results	Photo No.
1	Rocker support No.	S74	-
2	Right side condition	Movement to the downstream	27
3	Left side condition	None	-
4	Past repair record	None	-
5	Others	Measurement for the repair	-

3-2. Upper expansion joint near No.3 anchor block of Penstock No.1

Inspection in 15-Jul-2012

Items		Results	Photo No.
1	Water leakage	○	28
2	Difference between upper pipe and lower pipe (thickness of packing)	No measurement	-
3	Past repair record	Damaged packing was removed and replaced with new one twice in the past fifteen (15) years according to repair record. 1) 15 April 2006 2) 10-12 April 2010 According to the photo before repair in 10-12 April 2010, the water leakage was heavy.	29&30
3	Past repair record	Damaged packing was removed and replaced with new one in 5&6 April, 2000	-
4	Others	According to the present condition of photo, since there are some gaps in the joint.	-

3-3. Lower expansion joint near No.3 anchor block of Penstock No.1

Inspection in 15-Jul-2012

Items		Results	Photo No.
1	Water leakage	×	31-33
2	Difference between upper pipe and lower pipe (thickness of packing)	No measurement	-
3	Past repair record	Damaged packing was removed and replaced with new one in 5&6 April, 2000.	-

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BALUCHAUNG NO.2 Hydropower Plant
in Republic of the Union of MYANMAR

		According to the JICA Expert report in 2000, it has been reported that a quantity of water leakage is 1.2 L/min.	
4	Others	According to the present condition of photo, there is water leakage in the bottom of the expansion joint.	-

3-4. Expansion joint near No.6 anchor block of Penstock No.1

Inspection in 8-Jul-2012

Items	Results	Photo No.
1 Water leakage	○	-
2 Difference between upper pipe and lower pipe (thickness of packing)	○	-
3 Past repair record	Damaged packing was removed and replaced with new one in 26 & 27 December, 1997	-
4 Others	None	-

3-5. Expansion joint near No.7 anchor block (Unit No.1 & 2) of Penstock No.1

Inspection in 8-Jul-2012

Items	Results	Photo No.
1 Water leakage	○	-
2 Difference between upper pipe and lower pipe (thickness of packing)	○	-
3 Past repair record	None	-
4 Others	None	-

3-6. Expansion joint near No.7 anchor block (Unit No.3) of Penstock No.1

Inspection in 8-Jul-2012

Items	Results	Photo No.
1 Water leakage	○	-
2 Difference between upper pipe and lower pipe (thickness of packing)	○	-
3 Past repair record	None	-
4 Others	None	-

3-7. Upper expansion joint near No.3 anchor block of Penstock No.2

Inspection in 15-Jul-2012

Items	Results	Photo No.
1 Water leakage	△	34-36
2 Difference between upper pipe and lower pipe (thickness of packing)	No measurement	-
3 Past repair record	None	-
4 Others	Since there is water leakage in the both sides of the	-

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BALUCHAUNG NO.2 Hydropower Plant
in Republic of the Union of MYANMAR

		expansion joint according to the present condition by photo, it is necessary to confirm the detail conditions in the rainy season.	
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3-8. Expansion joint near No.6 anchor block of Penstock No.2

Inspection in 8-Jul-2012

Items	Results	Photo No.
1 Water leakage	○	-
2 Difference between upper pipe and lower pipe (thickness of packing)	○	-
3 Past repair record	Damaged packing was removed and replaced with new one in 13 & 14 August, 2005	-
4 Others	None	-

3-9. Expansion joint near No.7 anchor block (Unit No.4) of Penstock No.2

Inspection in 8-Jul-2012

Items	Results	Photo No.
1 Water leakage	○	-
2 Difference between upper pipe and lower pipe (thickness of packing)	○	-
3 Past repair record	None	-
4 Others	Since a small quantity of water leakage comes oozing though the expansion joint, it is not necessary to replace its packing according to the current situation and the measurement results.	-

3-10. Expansion joint near No.7 anchor block (Unit No.5 & 6) of Penstock No.2

Inspection in 7&10-Jul-2012

Items	Results	Photo No.
1 Water leakage	×	37&38
2 Difference between upper pipe and lower pipe (thickness of packing)	×	39
3 Past repair record	Damaged packing was removed and replaced with new one four (4) times in the past fifteen (15) years 1) 13&14 June, 1998 2) 13&14 August 2005 3) 27 August 2006 4) 10 September 2011 According to the photo before repair in 10 September 2011, the water leakage was heavier than the present.	42
4 Others	Measurement for the rehabilitation planning Under base concrete of No.7 anchor block (Unit No.5 & 6) of penstock pipe line No.2, which is located in the upstream of the expansion joint, is eroded by continuous the water leakage.	40&41



No 1

Date 14-Jul-12

Butterfly valve fo LPPL No.1

Situation of the outside condition
(view from the downstream of the right side)



No 2

Date 8-Aug-12

Butterfly valve fo LPPL No.1

Situation of opening valve with stoppage of
turbine-generators
(view from the upstream)



No 3

Date 8-Aug-12

Butterfly valve fo LPPL No.1

Situation of damaged packing
(view from the upstream)



No 4

Date 9&11-Jul-2012

Rocker support "S3" of LPPL No.1

General view of rocker support "S3"
(view from the upstream of the right side)



No 5

Date 9&11-Jul-2012

Rocker support "S3" of LPPL No.1

Situation of damaged rocker support "S3"
This is the left side of rocker support,
which is moved to the upstream.
(view from the left side)



No 6

Date 9&11-Jul-2012

Rocker support "S4" of LPPL No.1

Situation of damaged rocker support "S4"
This is the right side of rocker support,
which is moved to the upstream.
(view from the right side)



No 7

Date 9&11-Jul-2012

Rocker support "S4" of LPPL No.1

Situation of damaged rocker support "S4"
This is the left side of rocker support,
which is moved to the downstream.
(view from the left side)



No 8

Date 9&11-Jul-2012

Rocker support "S5" of LPPL No.1

Situation of damaged rocker support "S5"
This is the right side of rocker support,
which is moved to the upstream.
(view from the right side)



No 9

Date 9&11-Jul-2012

Rocker support "S5" of LPPL No.1

Situation of damaged rocker support "S5"
This is the left side of rocker support,
which is moved to the upstream.
(view from the left side)



No 10

Date 9&11-Jul-2012

Rocker support "S49" of LPPL No.1

Situation of damaged rocker support "S49"

This is the right side of rocker support, which is moved to the upstream.
(view from the right side)



No 11

Date 9&11-Jul-2012

Rocker support "S49" of LPPL No.1

Situation of damaged rocker support "S49"

This is the left side of rocker support, which is moved to the upstream.
(view from the left side)



No 12

Date 9&11-Jul-2012

Rocker support "S48" of LPPL No.1

The upstream of rocker support "S49" is a structural steel type.
(view from the upstream)



No 13

Date 9&11-Jul-2012

Rocker support "S50" of LPPL No.1

Situation of damaged rocker support "S50"

This is the left side of rocker support, which is moved to the downstream.
(view from the left side)



No 14

Date 9&11-Jul-2012

Rocker support "S51" of LPPL No.1

Situation of damaged rocker support "S51"

This is the right side of rocker support, which is moved to the upstream.
(view from the right side)



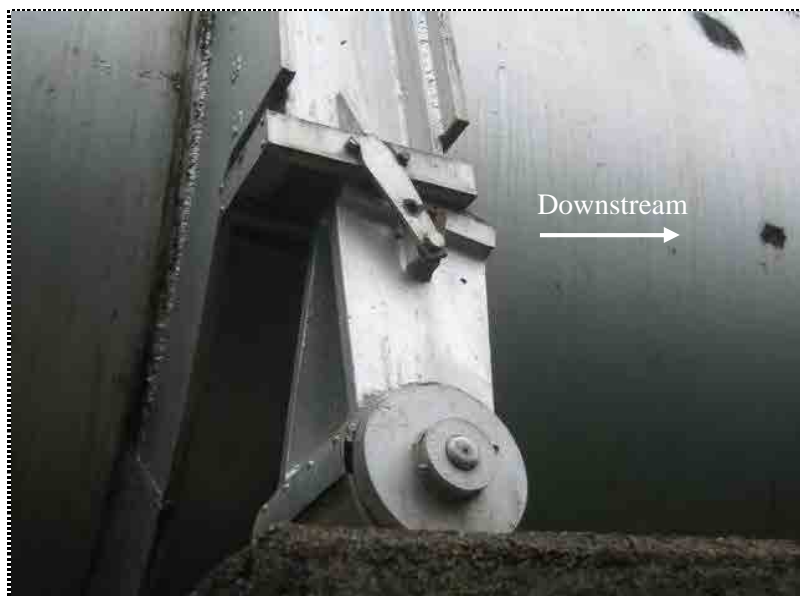
No 15

Date 9&11-Jul-2012

Rocker support "S51" of LPPL No.1

Situation of damaged rocker support "S51"

This is the left side of rocker support, which is moved to the upstream.
(view from the left side)



No 16

Date 9&11-Jul-2012

Rocker support "S52" of LPPL No.1

Situation of damaged rocker support "S52"

This is the right side of rocker support, which is moved to the downstream.
(view from the right side)



No 17

Date 9&11-Jul-2012

Rocker support "S52" of LPPL No.1

Situation of damaged rocker support "S52"

This is the left side of rocker support, which is moved to the downstream.
(view from the left side)



No 18

Date 9&11-Jul-2012

Rocker support "S53" of LPPL No.1

Situation of damaged rocker support "S53"

This is the left side of rocker support, which is moved to the downstream.
(view from the left side)



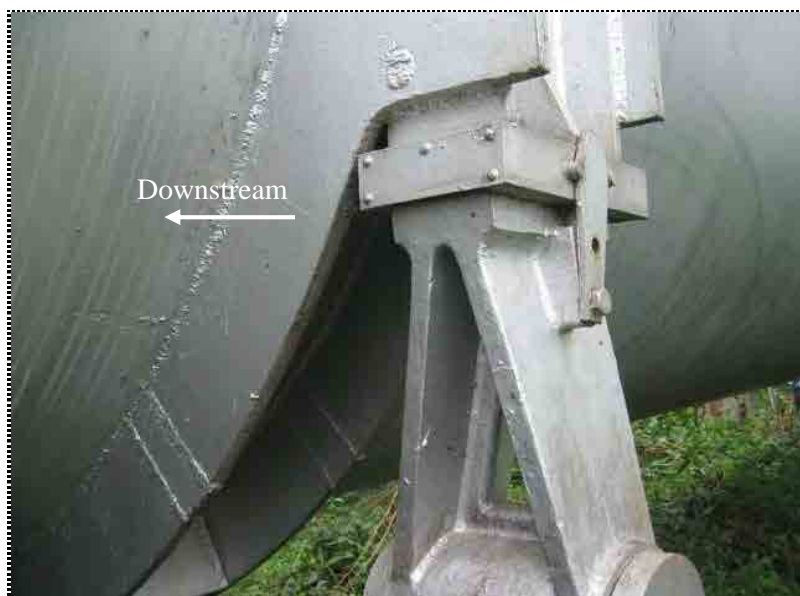
No 19

Date 9&11-Jul-2012

Rocker support "S54" of LPPL No.1

Situation of damaged rocker support "S54"

This is the right side of rocker support, which is moved to the downstream.
(view from the right side)



No 20

Date 9&11-Jul-2012

Rocker support "S55" of LPPL No.1

Situation of damaged rocker support "S55"

This is the left side of rocker support, which is moved to the downstream.
(view from the left side)



No 21

Date 9&11-Jul-2012

Situation of measurement works

Measurement surrounding rock supports for the repair planning



No 22

Date 7&10-July-2012

Rocker support "S71" of Penstock No.1

Situation of damaged rocker support "S71"

This is the right side of rocker support, which is moved to the downstream.
(view from the right side)



No 23

Date 7&10-July-2012

Rocker support "S71" of Penstock No.1

Situation of damaged rocker support "S71"

This is the left side of rocker support, which is moved to the downstream.
(view from the left side)



No 24

Date 7&10-July-2012

Rocker support "S71" of Penstock No.1

Base concrete of right side of rocker support has some cracks, which go on from anchor block to downstream surface.
(view from the downstream)



No 25

Date 7&10-July-2012

Rocker support "S71" of Penstock No.1

According to its drawing, the cracks are located in the joint between concrete surrounding base plate and base reinforced concrete
(view from the left side)



No 26

Date 7&10-July-2012

Rocker support "S72" of Penstock No.1

Situation of damaged rocker support "S72"
This is the left side of rocker support, which is moved to the downstream.
(view from the left side)



No 27

Date 7&10-July-2012

Rocker support "S74" of Penstock No.1

Situation of damaged rocker support "S74"
This is the right side of rocker support, which is moved to the downstream.
(view from the right side)



No 28

Date 15-Jul-12

Upper expansion joint near No.3 anchor
block of penstock No.1

There is no water leakage at present.
(view from the upstream of the right side)

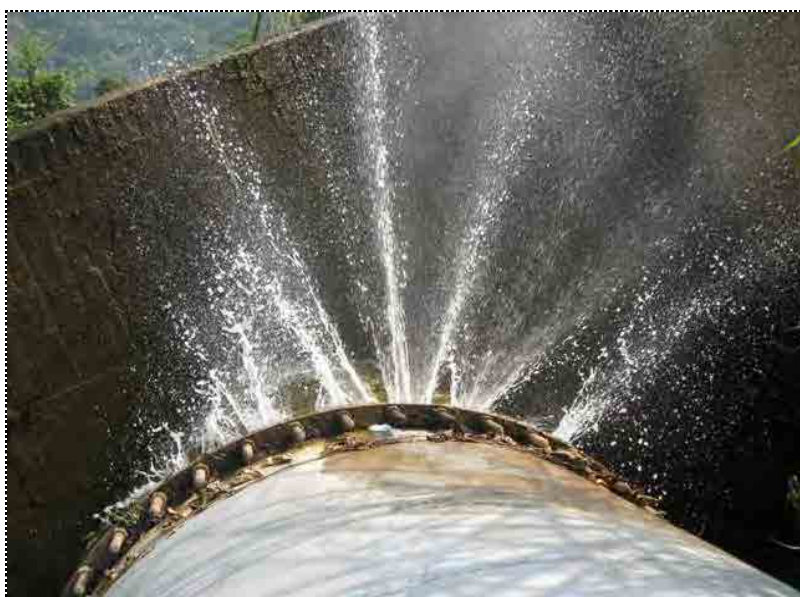


No 29

Date Before 10-April-2010

Upper expansion joint near No.3 anchor
block of penstock No.1

According to the photo before repair in
10-12 April 2010, the water leakage was
heavy.
(view from the right side)



No 30

Date Before 10-April-2010

Upper expansion joint near No.3 anchor
block of penstock No.1

Situation of water leakage from the top of
the expansion joint
(view from the upstream)



No 31

Date 15-Jul-12

Lower expansion joint near No.3 anchor block of penstock No.1

Situation of water leakage from the bottom of the expansion joint
(view from the upstream of the right side)



No 32

Date 15-Jul-12

Lower expansion joint near No.3 anchor block of penstock No.1

Enlarged the above
(view from the upstream of the right side)



No 33

Date 15-Jul-12

Lower expansion joint near No.3 anchor block of penstock No.1

Situation of water leakage from the bottom of the expansion joint
(view from the downstream of the left side)



No 34

Date 15-Jul-12

Upper expansion joint near No.3 anchor block of penstock No.2

Situation of water leakage from the right of the expansion joint
(view from the right side)



No 35

Date 15-Jul-12

Upper expansion joint near No.3 anchor block of penstock No.2

Enlarged the above
(view from the right side)



No 36

Date 15-Jul-12

Upper expansion joint near No.3 anchor block of penstock No.2

Situation of water leakage from the left of the expansion joint
(view from the left side)



No 37

Date 7&10-Jul-2012

Expansion joint near No.7 anchor block
(Unit No.5 & 6) of penstock No.2

Situation of water leakage from the expansion
joint
(view from the right side)



No 38

Date 7&10-Jul-2012

Expansion joint near No.7 anchor block
(Unit No.5 & 6) of penstock No.2

Enlarged the above
(view from the right side)



No 39

Date 7&10-Jul-2012

Expansion joint near No.7 anchor block
(Unit No.5 & 6) of penstock No.2

Situation of measurement for rehabilitation
planning
(view from the right side)



No 40

Date 7&10-Jul-2012

Expansion joint near No.7 anchor block
(Unit No.5 & 6) of penstock No.2

Situation of the erosion under base concrete
of No.7 anchor block (Unit No.5 & 6)
(view from the downstream of the left side)



No 41

Date 7&10-Jul-2012

Expansion joint near No.7 anchor block
(Unit No.5 & 6) of penstock No.2

Enlarged the above
(view from the downstream of the left side)



No 42

Date Before 10-September-2011

Expansion joint near No.7 anchor block
(Unit No.5 & 6) of penstock No.2

According to the photo before repair in
10 September 2011, the water leakage was
so heavy.
(view from the left side)