

گزارش بازرسی تیوب های کولرهای هوایی به روش

میدان دور جریان گردابی (RFT)

پروژه:

E-2109 / Section 2 / Cell 6 بازرسی تیوب های کولر هوایی

کارفرما:

شرکت صنایع پتروشیمی

مجری:

شرکت بازرسی فنی و کنترل خوردگی تکین کو

دی ماه ۱۳۹۱

ایران -



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۱. شرح کار

شرح کار عبارت است از آزمون لوله های کولر هوایی E-2109 / Section 2 / Cell 6 برای شرکت صنایع به روش میدان دور جریانهای گردابی (RFT).
کولر هوایی دارای لوله هایی از جنس SA179، قطر خارجی ۲۵.۴ میلیمتر، ضخامت اسمی ۲.۴۱۳ میلیمتر و طول ۱۲.۲ متر می باشد.

۲. اهداف

هدف از این بازرسی تعیین وضعیت کیفی لوله های کولرهای هوایی و میزان خوردگی داخلی و خارجی در لوله ها و ارائه گزارش های آماری و تعیین لوله هایی میباشد، که خوردگی آنها بیش از حد مجاز تعیین شده، توسط کارفرما میباشد.

۳. دستورالعمل

اجرای بازرسی برای لوله های مغناطیسی به روش میدان دور جریانهای گردابی (RFT) مطابق با استاندارد ASTM شماره E-2096 و دستورالعمل بازرسی شماره CN-GEN-RFT-001.00 بوده و آزمون با استفاده از دستگاه ++EEC-39RFT انجام گردیده است. فرکانس انتخاب شده برای لوله ها ۳۱۲ هرتز بوده و ارزیابی داده ها بر اساس کانال اصلی دیفرنشیال صورت گرفته است.

۴. شرح گزارش بازرسی

گزارش کار با نرم افزار ویژه دستگاه ++EEC-39RFT تهیه شده که شامل هشت بخش می باشد.

بخش اول

بخش اول صفحه ابتدایی گزارش می باشد که شامل اطلاعات کلی در مورد اجرای عملیات بازرسی است.

- این بخش حاوی اطلاعات زیر می باشد:
- ❖ Client : مشخصات مربوط به کارفرما.
 - ❖ Project : مشخصات مربوط به پروژه.
 - ❖ Plant/Shop : مشخصات محل اجرای عملیات بازرسی.
 - ❖ Item Name : مشخصات مبدل حرارتی بازرسی شده.
 - ❖ Request : شماره درخواست اجرای عملیات بازرسی.
 - ❖ Report No : شماره گزارش بازرسی.
 - ❖ Exam Date : تاریخ اجرای عملیات بازرسی.
 - ❖ Page No : شماره صفحه سند.
 - ❖ Subject & Subject ID : نوع مبدل حرارتی و مشخصات مبدل حرارتی بازرسی شده.
 - ❖ Basic Parameters & Material : مشخصات کلی مبدل حرارتی مانند جنس لوله، قطر داخلی و خارجی لوله، ضخامت لوله، تعداد لوله ها، وضعیت لوله ها و
 - ❖ Geometry : وضعیت قرار گیری مبدل حرارتی.
 - ❖ Code / Standard : کد و استاندارد اجرای عملیات بازرسی.
 - ❖ Inspection Method : روش بازرسی.
 - ❖ Spec./Procedure : شماره آیین نامه اجرای عملیات بازرسی.
 - ❖ Inspection Technique : تکنیک بازرسی.
 - ❖ Equipment : مشخصات دستگاه .
 - ❖ Probes : مشخصات پراب ها.
 - ❖ Total inspected Tubes : تعداد و طول کل بازرسی شده.
 - ❖ نام و امضا بازرسی ، ناظر و کارفرما

بخش دوم

بخش دوم Tube Sheet Map می باشد که تصویر کامل لوله ها و موقعیت و شماره گذاری آنها بوده و میتواند در دیگر کارهایی که روی مبدل انجام میگردد، نیز مورد استفاده قرار گیرد.

این بخش حاوی اطلاعات زیر می باشد:

- ❖ Tube Sheet Map : نقشه خام جانمایی لوله ها.
- ❖ View : جهت قرارگیری برای رویت شماره گذاری نقشه لوله ها.
- ❖ Row1 : مکان ردیف اول لوله ها.
- ❖ Column1 : مکان ستون اول لوله ها.
- ❖ نام و امضا بازرسی ، ناظر و کارفرما

بخش سوم

بخش سوم Defect Picture On Tube Sheet Map می باشد که در این گزارش لوله ها در بازه های مختلف دسته بندی شده اند که این بازه ها با رنگهای مختلف در زیر گزارش معرفی شده است. با دیدن این گزارش وضعیت کیفی مبدل برای کارفرمای محترم مشخص شده و مکان تجمع لوله های معیوب معلوم میگردد.

این بخش حاوی اطلاعات زیر می باشد:

- ❖ NOTEST : این لوله بازرسی نشده است.
- ❖ TEST OK : این لوله بازرسی شده است و میزان بیشترین خوردگی در آن کمتر از ۲۰ درصد ضخامت اولیه لوله است. حداقل ضخامت باقیمانده در این لوله بیش از ۸۰ درصد ضخامت اولیه لوله می باشد.
- ❖ CLASS 1 : این لوله بازرسی شده است و میزان بیشترین خوردگی آن در محدوده ۲۱ تا ۴۰ درصد ضخامت اولیه لوله است. حداقل ضخامت باقیمانده این لوله در محدوده ۶۰ تا ۷۹ درصد ضخامت اولیه لوله می باشد.
- ❖ CLASS 2 : این لوله بازرسی شده است و میزان بیشترین خوردگی آن در محدوده ۴۱ تا ۶۰ درصد ضخامت اولیه لوله است. حداقل ضخامت باقیمانده این لوله در محدوده ۴۰ تا ۵۹ درصد ضخامت اولیه لوله می باشد.
- ❖ CLASS 3 : این لوله بازرسی شده است و میزان بیشترین خوردگی آن در محدوده ۶۱ تا ۸۰ درصد ضخامت اولیه لوله است. حداقل ضخامت باقیمانده این لوله در محدوده ۲۰ تا ۳۹ درصد ضخامت اولیه لوله می باشد.

- ❖ **CLASS 4**: این لوله بازرسی شده است و میزان بیشترین خوردگی آن در محدوده ۸۱ تا ۱۰۰ درصد ضخامت اولیه لوله است. حداقل ضخامت باقیمانده این لوله کمتر از ۱۹ درصد ضخامت اولیه لوله می باشد.
- ❖ **PLUGGED**: این لوله پلاگ است.
- ❖ **REST'N**: بازرسی این لوله بعلت عدم عبور کامل پرآب از آن به صورت کامل انجام نشده است.
- ❖ **CUSTOM**: این لوله بعلت وجود سیگنال مشکوک بر اساس خوردگی آن دسته بندی نشده است.
- ❖ **View**: جهت قرارگیری برای رویت شماره گذاری نقشه لوله ها.
- ❖ **Row1**: مکان ردیف اول لوله ها.
- ❖ **Column1**: مکان ستون اول لوله ها.
- ❖ نام و امضا بازرسی ، ناظر و کارفرما

بخش چهارم

بخش چهارم **Plugging Plan On Tube Sheet Map** می باشد که در این گزارش لوله هایی که قبلاً پلاگ شده اند و همچنین لوله هایی که حد خوردگی آنها از حد مجازی که کارفرمای محترم تعیین نموده بیشتر میباشند و باید پلاگ یا تعویض شوند، مشخص شده اند.

بخش پنجم

بخش پنجم **Statistic Report (Table)** می باشد که این گزارش بصورت آماری وضعیت کیفی مبدل را توصیف نموده و تعداد لوله هایی که در بازه های مختلف خوردگی قرار میگیرند را به صورت عددی مشخص مینماید.

بخش ششم

بخش ششم **Statistic Report (Column Chart)** می باشد که این گزارش بصورت آماری وضعیت کیفی مبدل را توصیف نموده و تعداد لوله هایی که در بازه های مختلف خوردگی قرار میگیرند را به صورت نمودار میله ای مشخص مینماید.

بخش هفتم

بخش هفتم **Statistic Report (Pie Chart)** می باشد که این گزارش بصورت آماری وضعیت کیفی مبدل را توصیف نموده و تعداد لوله هایی که در بازه های مختلف خوردگی قرار میگیرند را به صورت نمودار دایره ای مشخص مینماید.

بخش هشتم

بخش هشتم Tube Defect Report می باشد که در این گزارش موقعیت نسبی خوردگی متناسب با طول لوله نمایش داده میشود. این گزارش برای لوله هایی که دارای خوردگی (کلاس یک تا چهار) هستند موقعیت سیگنال خوردگی را بر روی گزارش استریپ چارت با خطوط آبی رنگ مشخص می نماید. همچنین سیگنال مربوطه به رنگ صورتی نیز نمایش داده می شوند.

۵. بازرسی

بازرسی مجری عملیات بازرسی آقایان مهندس [] دارای گواهینامه های معتبر سطح دو در جریانهای گردابی از موسسه آزمایشات غیرمخرب آمریکا (ASNT) و سرپرست اجرای پروژه آقای مهندس [] دارای گواهینامه های معتبر سطح سه در جریانهای گردابی از موسسه آزمایشات غیرمخرب آمریکا (ASNT) با بیش از ده سال سابقه بازرسی می باشند.

۶. مشاهدات و نتایج عملیات بازرسی

جمعا ۲۷۹ عدد لوله از مجموع ۲۸۰ عدد لوله به طول کل ۳۳۹۲.۶ متر به صورت زیر بازرسی گردید:

ردیف	نام کولر هوایی	تعداد لوله	طول تست شده (متر)	جمع کل طول (متر)
۱.	E-2109 / Section 2 / Cell 6 ردیف ۱	۵۶	۱۲	۶۷۲
۲.	E-2109 / Section 2 / Cell 6 ردیف ۲	۵۶	۱۲.۲	۶۸۳.۲
۳.	E-2109 / Section 2 / Cell 6 ردیف ۳	۵۵	۱۲.۲	۶۷۱
۴.	E-2109 / Section 2 / Cell 6 ردیف ۴	۵۶	۱۲.۲	۶۸۳.۲
۵.	E-2109 / Section 2 / Cell 6 ردیف ۵	۵۶	۱۲.۲	۶۸۳.۲
	جمع کل	۲۷۹	-	۳۳۹۲.۶

توضیحات:

در لوله های ردیف اول بعلت وجود مانع حدود بیست سانتیمتر از ابتدای لوله ها مورد بازرسی قرار نگرفت. یک لوله در ردیف سوم بعلت پلاگ بودن مورد بازرسی قرار نگرفت.



این شرکت مسئولیت صحت نتایج گزارش را تضمین نموده و مسئولیت کامل آن را به عهده می گیرد.

بازرسین مجری عملیات بازرسی	تهیه کننده گزارش بازرسی	رئیس بخش بازرسی غیرمخرب
امضاء	امضاء	امضاء



۷. گزارش بازرسی

۷.۱. کولر هوایی شماره E-2109 / Section 2 / Cell 6





Tube Inspection Report (ECT & RFT)

Client:		Request:	KNM-9100133-KN/A
Project:	Air Cooler's tube inspection	Report No:	
Plant/Shop:		Exam Date:	21-10-1391
Item Name:		Page No.:	

Subject:	Condenser <input type="checkbox"/> Cooler <input checked="" type="checkbox"/> Heater <input type="checkbox"/> Tubes <input type="checkbox"/>	Subject ID:	E-2109 – section 2 – cell 6
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Basic Parameters & Material

Tube ID:	1. 20.57 (mm)	3. (mm)	Tube OD:	1. 25.4 (mm)	3. (mm)
	2. (mm)	4. (mm)		2. (mm)	4. (mm)
Entrance ID:	1. (mm)	3. (mm)	Wall Thickness:	1.2.413 (mm)	3. (mm)
	2. (mm)	4. (mm)		2. (mm)	4. (mm)
Material/s:	1. SA179	3.	No. of Tubes:	1. 280 (#)	3. (#)
	2.	4.		2. (#)	4. (#)
Ferromagnetic <input checked="" type="checkbox"/> Diamagnetic <input type="checkbox"/>			Length (Straight):12.2 (m)		

Min. Bend's Radius:	N/A (cm)	Max. Bend's Radius:	N/A (cm)
Bends Inspection:	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		
New Sample/s :	Available <input checked="" type="checkbox"/> Not Available <input type="checkbox"/>	Tube Cleaned	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>

Geometry	Tubes Type:	Straight <input checked="" type="checkbox"/> U Shape <input type="checkbox"/>	Construction:	Vertical <input type="checkbox"/> Horizontal <input checked="" type="checkbox"/>
	Fin:	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		
	Tube Sheet Front Space:	Open <input checked="" type="checkbox"/> Limited with Water Box <input type="checkbox"/>	Distance :	(m)

Code/Standard: ASTM E 2096 - 05	Spec./Procedure: CN-GEN-RFT-001.00
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Inspection Method:
Eddy Current Testing (ECT) Remote Field Eddy Current Testing (RFT)

Inspection Technique:
Absolute Differential Through Transmission Reflection

Equipment:
Manufacturer: EddySun **Model:** EEC-39RFT++ **Serial No.:** 200609113729PA **Part No.:** 39

Probes:

Row	Diameter (mm):	Type:	Fill Factor (%):	Frequency (Hz)
1	18.5	Differential	80	312
2	-	-	-	-
3	-	-	-	-
4	-	-	-	-

Total inspected Tubes:

Row	Number	Each Tube 's Length (m)	Total Length (m)	Note
1	56	12	672	Row 1
2	223	12.2	2720.6	Row 2 to 5
3	-	-	-	-
4	-	-	-	-
Total:			3392.6 m	

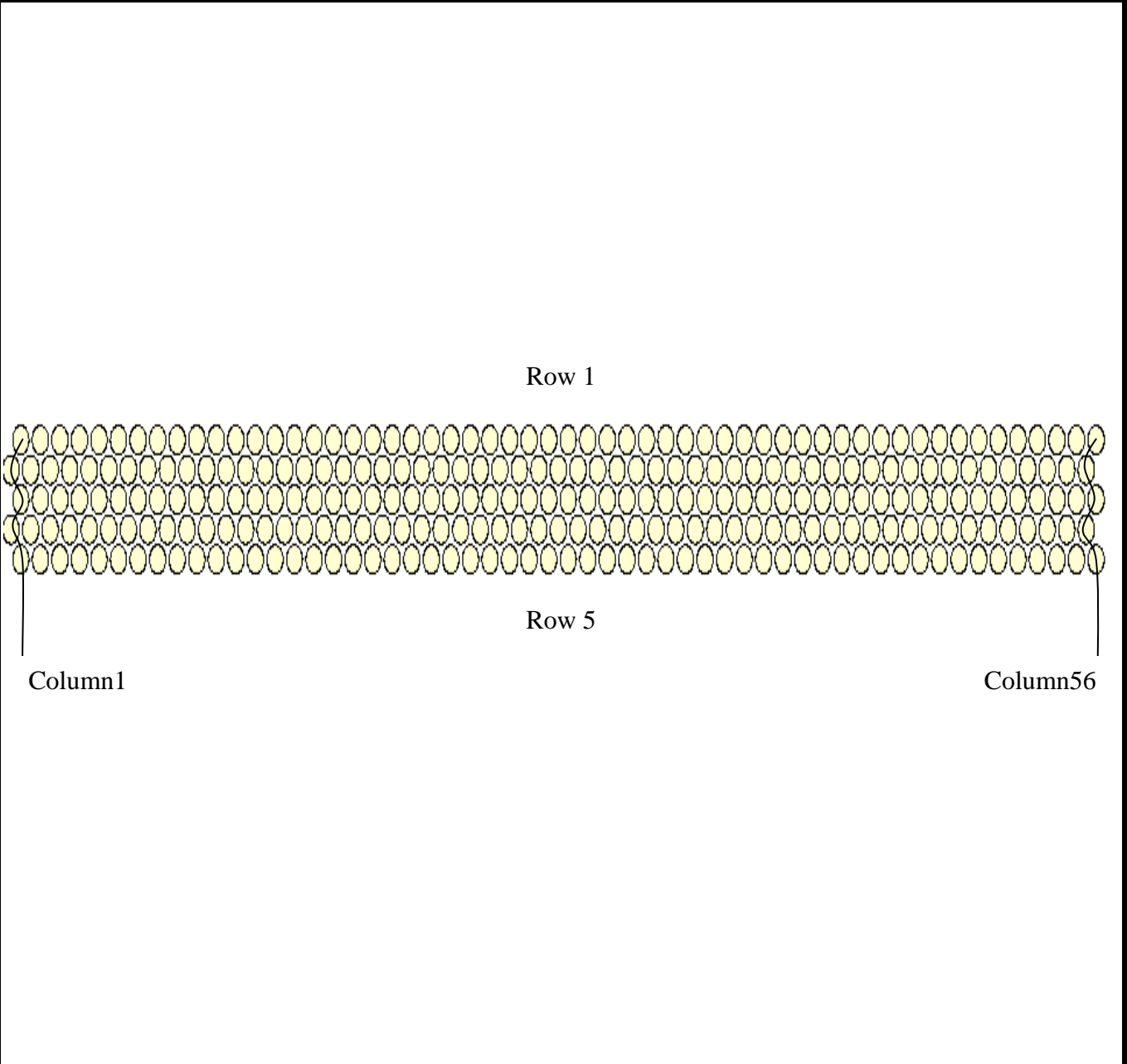
Inspector	Reported By:	Client:
Report Date:24-10-1391	Date:24-10-1391	Date:
Sign:	Sign:	Sign:



Tube Inspection Report (ECT & RFT)

Client:		Request:	KNM-9100133-KN/A
Project:	Air Cooler's tube inspection	Report No:	
Plant/Shop:		Exam Date:	21-10-1391
Item Name:		Page No.:	

Tube Sheet Map



View: From North to south	Row 1: Top	Column 1: East
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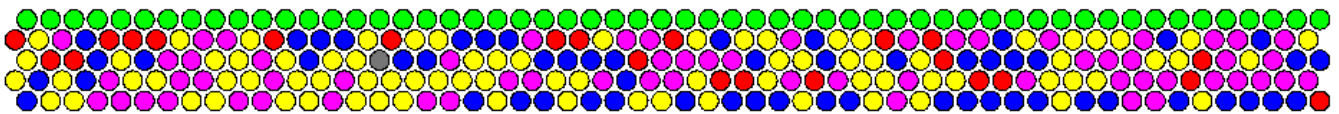
Inspector	Reported By:	Client:
Report Date:24-10-1391	Date:24-10-1391	Date:
Sign:	Sign:	Sign:



Tube Inspection Report (ECT & RFT)

Client: [REDACTED]	Request: KNM-9100133-KN/A
Project: Air Cooler's tube inspection	Report No: [REDACTED]
Plant/Shop: [REDACTED]	Exam Date: 21-10-1391
Item Name: [REDACTED]	Page No.:

Defect Picture On Tube Sheet Map



Sign	Meaning	Meaning	Corrosion (%)	Minimum Remaining Thickness	
				%	mm
●	NO TEST	TEST OK	0 to 20	80 to 100	1.93 to 2.413
●	TEST OK	CLASS 1	21 to 40	60 to 79	1.44 to 1.93
●	PLUGGED	CLASS 2	41 to 60	40 to 59	0.96 to 1.44
●	CLASS 1	CLASS 3	61 to 80	20 to 39	0.48 to 0.96
●	CLASS 2	CLASS 4	81 to 100	0 to 19	0 to 0.48
●	CLASS 3	REST'N			
●	CLASS 4	CUSTOM			

View: From North to south	Row 1: Top	Column 1: East
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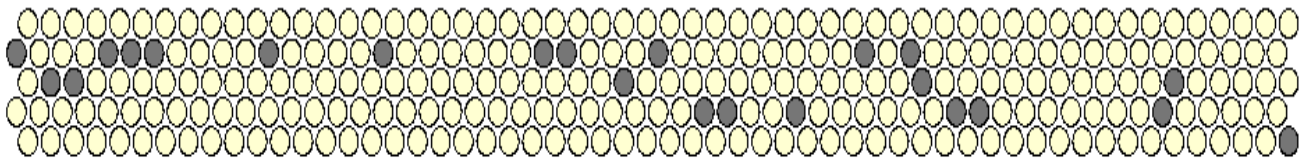
Inspector	Reported By:	Client:
Report Date:24-10-1391	Date:24-10-1391	Date:
Sign:	Sign:	Sign:



Tube Inspection Report (ECT & RFT)

Client: [REDACTED]	Request: KNM-9100133-KN/A
Project: Air Cooler's tube inspection	Report No: [REDACTED]
Plant/Shop: [REDACTED]	Exam Date: 21-10-1391
Item Name: [REDACTED]	Page No.:

Plugging Plan On Tube Sheet Map



Sign	Meaning
● (Yellow)	NO TEST
● (Green)	TEST OK
● (Grey)	PLUGGED
● (Blue)	CLASS 1
● (Yellow)	CLASS 2
● (Magenta)	CLASS 3
● (Red)	CLASS 4
● (Teal)	REST'N
● (Olive)	CUSTOM

View From North to south	Row 1: Top	Column 1: East
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Inspector	Reported By:	Client:
Report Date:24-10-1391	Date:24-10-1391	Date:
Sign:	Sign:	Sign:



Tube Inspection Report (ECT & RFT)

Client:		Request:	KNM-9100133-KN/A
Project:	Air Cooler's tube inspection	Report No:	
Plant/Shop:		Exam Date:	21-10-1391
Item Name:		Page No.:	

Statistic Report (Table)

Sign	Meaning	Number	Percent(%)
	NO TEST	0	0.0
	TEST OK	56	20.0
	PLUGGED	1	0.4
	CLASS 1	57	20.4
	CLASS 2	81	28.9
	CLASS 3	62	22.1
	CLASS 4	23	8.2
	REST'N	0	0.0
	CUSTOM	0	0.0
	Total Number	280	100

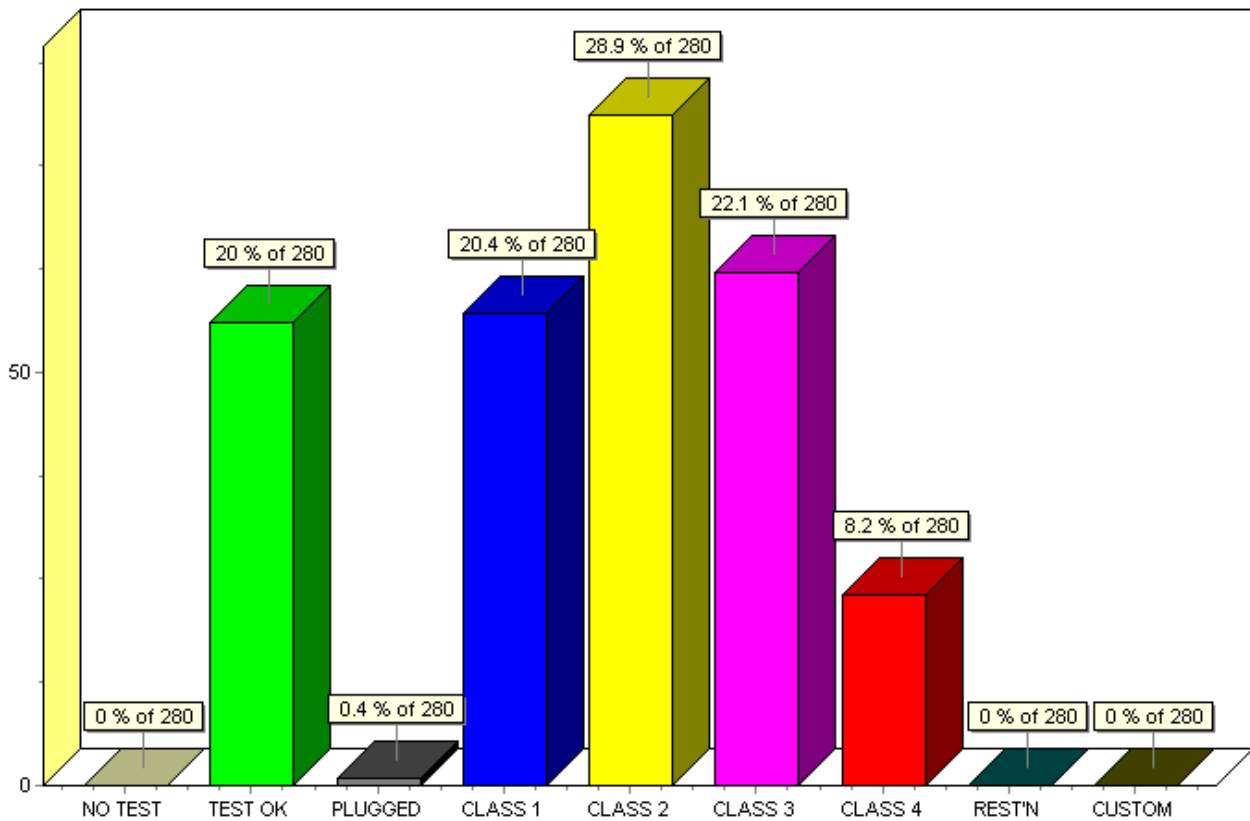
Inspector	Reported By:	Client:
Report Date:24-10-1391	Date:24-10-1391	Date:
Sign:	Sign:	Sign:



Tube Inspection Report (ECT & RFT)

Client:		Request:	KNM-9100133-KN/A
Project:	Air Cooler's tube inspection	Report No:	
Plant/Shop:		Exam Date:	21-10-1391
Item Name:		Page No.:	

Statistic Report (Column Chart)



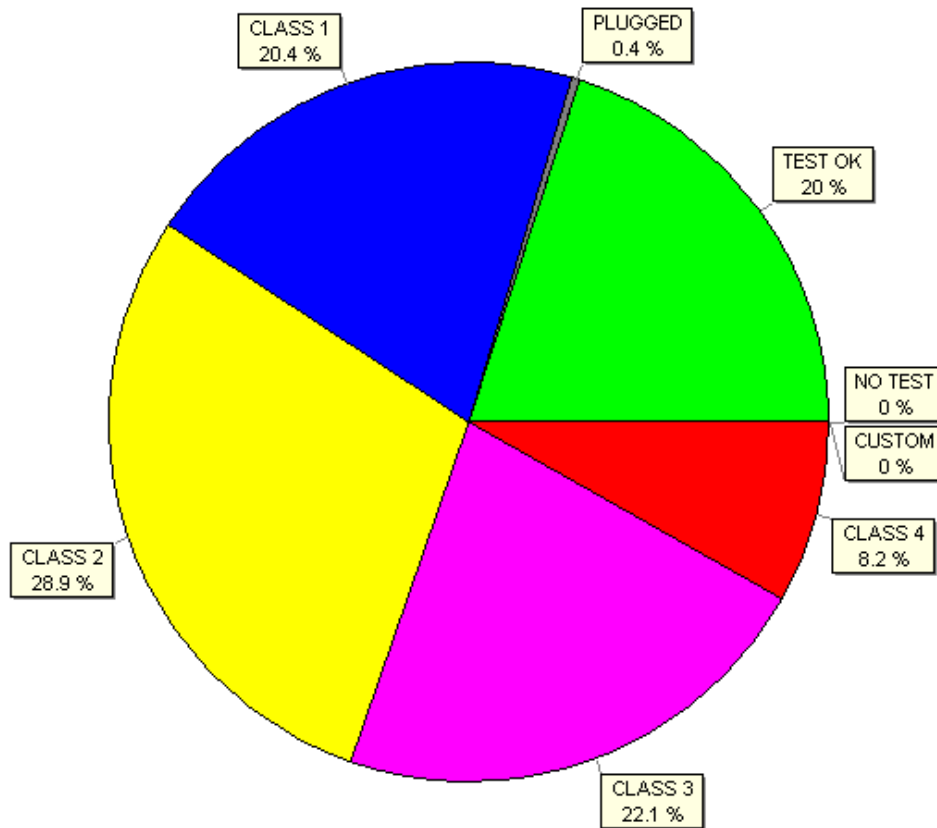
Inspector	Reported By:	Client:
Report Date:24-10-1391	Date:24-10-1391	Date:
Sign:	Sign:	Sign:



Tube Inspection Report (ECT & RFT)

Client:		Request:	KNM-9100133-KN/A
Project:	Air Cooler's tube inspection	Report No:	
Plant/Shop:		Exam Date:	21-10-1391
Item Name:		Page No.:	

Statistic Report(Pie Chart)



Inspector	Reported By:	Client:
Report Date:24-10-1391	Date:24-10-1391	Date:
Sign:	Sign:	Sign:



Tube Inspection Report (ECT & RFT)

Client: [REDACTED]	Request: KNM-9100133-KN/A
Project: Air Cooler's tube inspection	Report No: [REDACTED]
Plant/Shop: [REDACTED]	Exam Date: 21-10-1391
Item Name: [REDACTED]	Page No.:

Tube Defect Report

Row-Column	1-1	1-2	1-3	1-4	1-5
Start : North	1				
	2				
	3				
Unit: Meter	4				
	5				
	6				
	7				
	8				
	9				
End: South	10				
	11				
	12.2				

Inspector	Reported By:	Client:
Report Date:24-10-1391	Date:24-10-1391	Date:
Sign:	Sign:	Sign:



Tube Inspection Report (ECT & RFT)

Client: [REDACTED]	Request: KNM-9100133-KN/A
Project: Air Cooler's tube inspection	Report No.: [REDACTED]
Plant/Shop: [REDACTED]	Exam Date: 21-10-1391
Item Name: [REDACTED]	Page No.:

Tube Defect Report

Row-Column	1-6	1-7	1-8	1-9	1-10	
Start : North						
						1
						2
3						
Unit: Meter						4
						5
						6
						7
						8
						9
End: South						10
	11					
	12.2					

Inspector	Reported By:	Client:
Report Date:24-10-1391	Date:24-10-1391	Date:
Sign:	Sign:	Sign:



Tube Inspection Report (ECT & RFT)

Client: [REDACTED]	Request: KNM-9100133-KN/A
Project: Air Cooler's tube inspection	Report No: [REDACTED]
Plant/Shop: [REDACTED]	Exam Date: 21-10-1391
Item Name: [REDACTED]	Page No.:

Tube Defect Report

Row-Column	1-11	1-12	1-13	1-14	1-15	
Start : North	1					
	2					
	3					
Unit: Meter	4					
	5					
	6					
	7					
	8					
	9					
End: South	10					
	11					
	12.2					

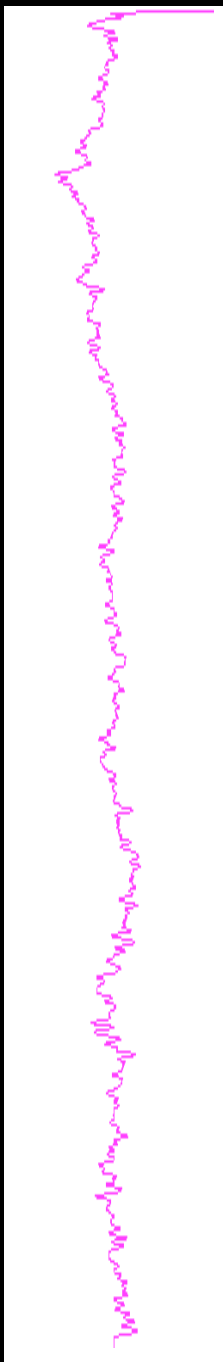
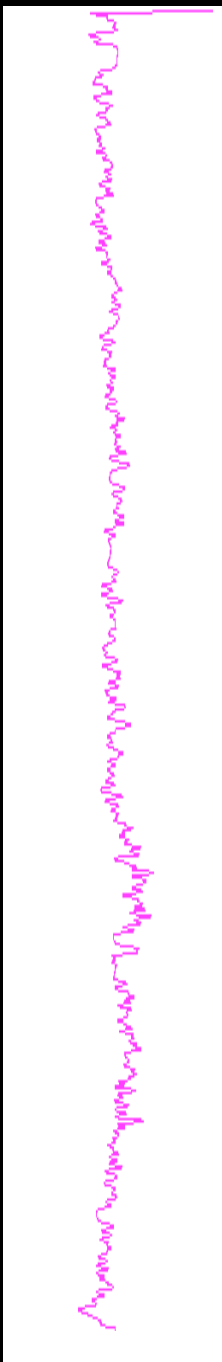
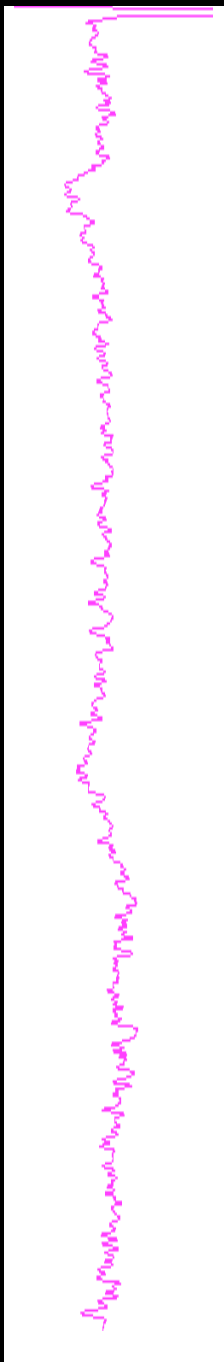
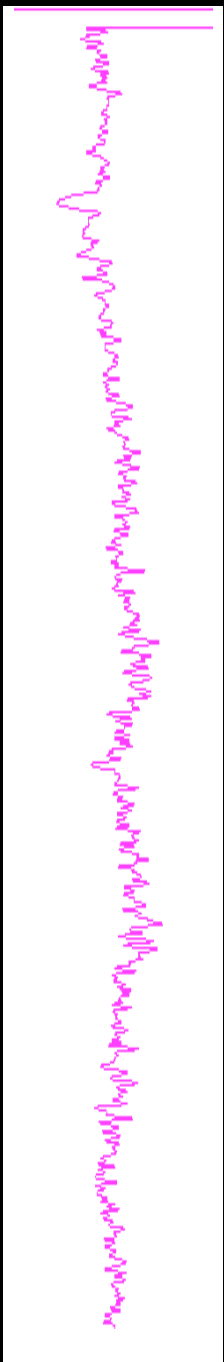
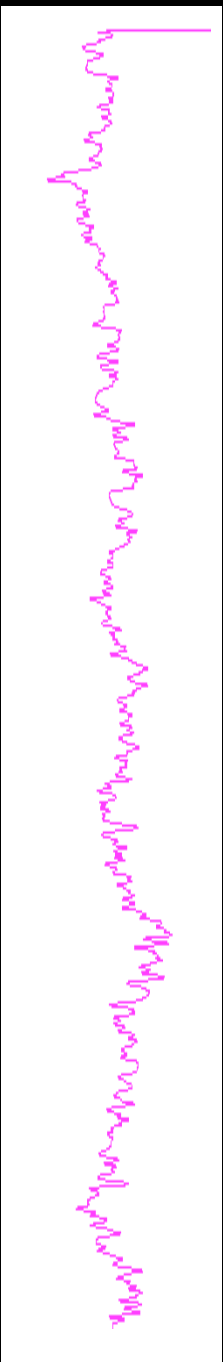
Inspector	Reported By:	Client:
Report Date:24-10-1391	Date:24-10-1391	Date:
Sign:	Sign:	Sign:



Tube Inspection Report (ECT & RFT)

Client: [Redacted]	Request: KNM-9100133-KN/A
Project: Air Cooler's tube inspection	Report No.: [Redacted]
Plant/Shop: [Redacted]	Exam Date: 21-10-1391
Item Name: [Redacted]	Page No.:

Tube Defect Report

Row-Column	1-16	1-17	1-18	1-19	1-20	
Start : North						
						1
						2
3						
Unit: Meter						4
						5
						6
						7
						8
						9
End: South						10
	11					
	12.2					

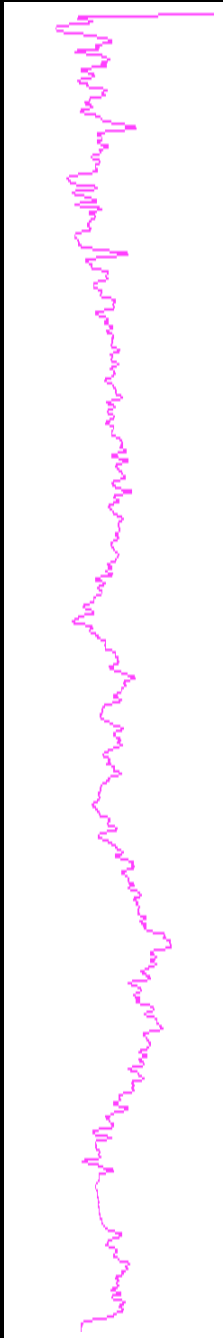

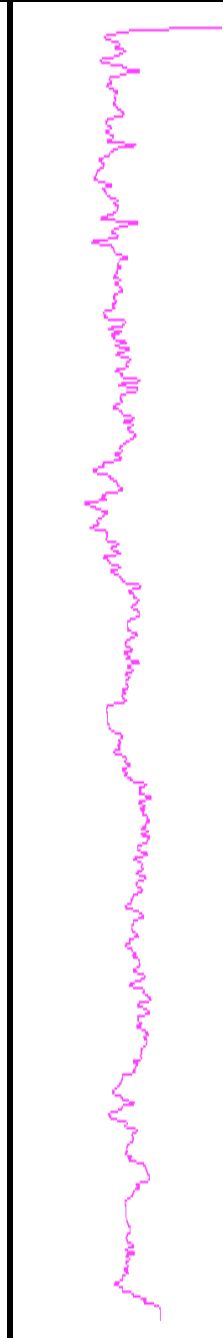
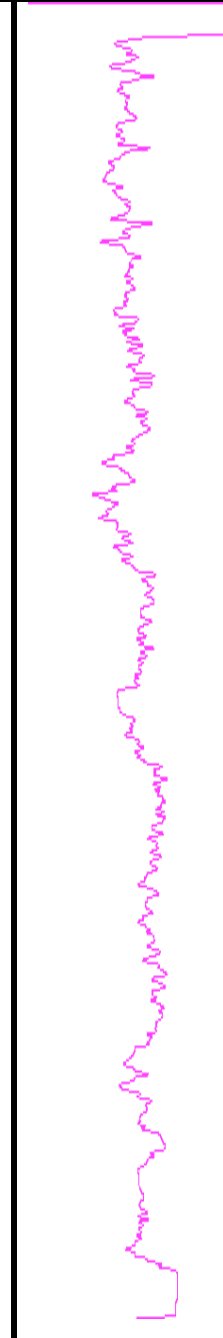
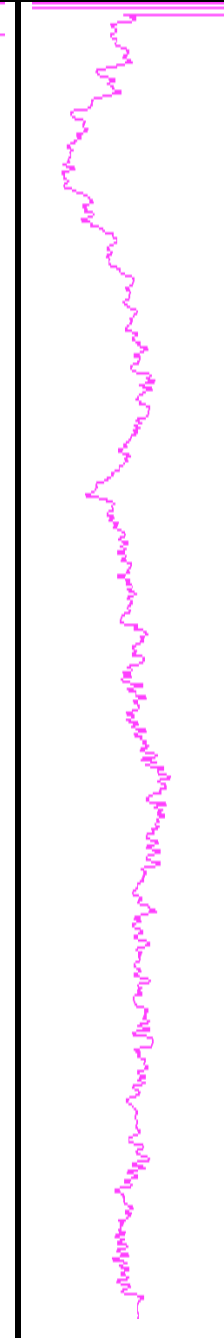
Inspector	Reported By:	Client:
Report Date:24-10-1391	Date:24-10-1391	Date:
Sign:	Sign:	Sign:



Tube Inspection Report (ECT & RFT)

Client: [REDACTED]	Request: KNM-9100133-KN/A
Project: Air Cooler's tube inspection	Report No: [REDACTED]
Plant/Shop: [REDACTED]	Exam Date: 21-10-1391
Item Name: [REDACTED]	Page No.:

Tube Defect Report

Row-Column	1-21	1-22	1-23	1-24	1-25	
Start : North						
						1
						2
3						
Unit: Meter						4
						5
						6
						7
						8
End: South						9
						10
	11					
	12.2					

Inspector	Reported By:	Client:
Report Date:24-10-1391	Date:24-10-1391	Date:
Sign:	Sign:	Sign:



Tube Inspection Report (ECT & RFT)

Client:		Request:	KNM-9100133-KN/A
Project:	Air Cooler's tube inspection	Report No:	
Plant/Shop:		Exam Date:	21-10-1391
Item Name:		Page No.:	

Tube Defect Report

Row-Column	1-26	1-27	1-28	1-29	1-30	
Start : North						
						1
						2
3						
Unit: Meter						4
						5
						6
						7
						8
End: South						9
						10
	11					
	12.2					

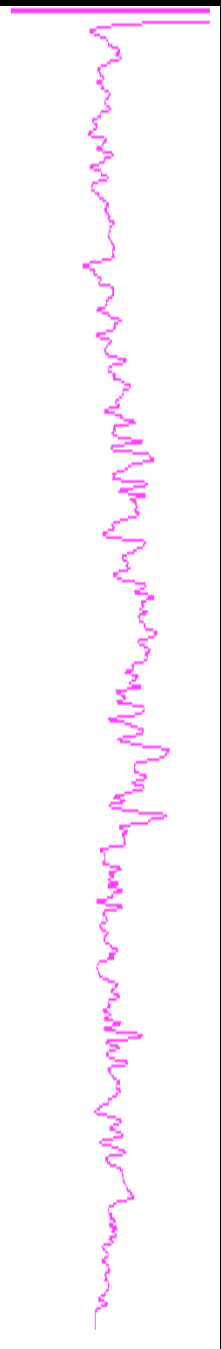
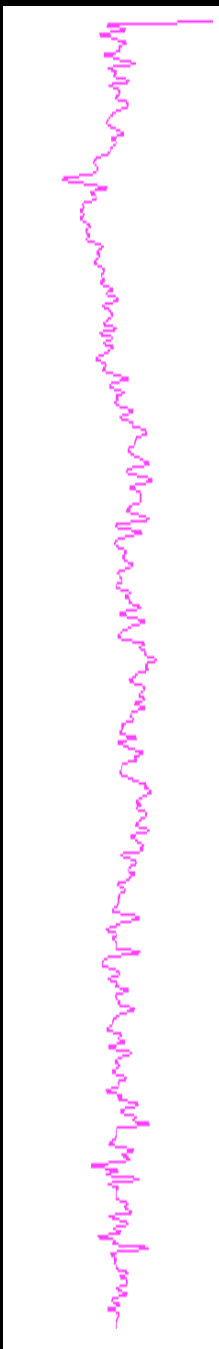
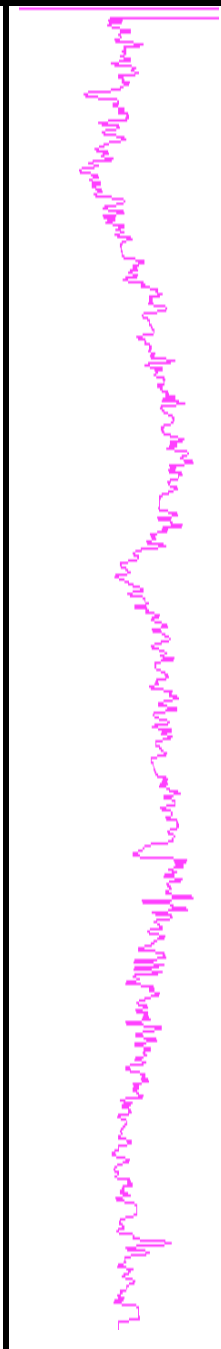

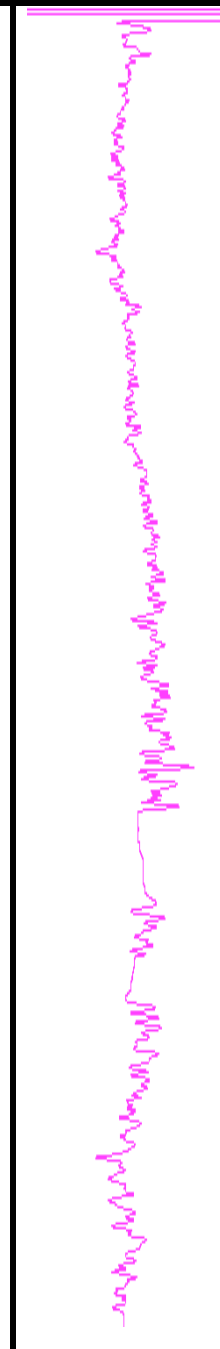
Inspector	Reported By:	Client:
Report Date:24-10-1391	Date:24-10-1391	Date:
Sign:	Sign:	Sign:



Tube Inspection Report (ECT & RFT)

Client: [REDACTED]	Request: KNM-9100133-KN/A
Project: Air Cooler's tube inspection	Report No: [REDACTED]
Plant/Shop: [REDACTED]	Exam Date: 21-10-1391
Item Name: [REDACTED]	Page No.:

Tube Defect Report

Row-Column	1-31	1-32	1-33	1-34	1-35	
Start : North						
						1
						2
3						
Unit: Meter						4
						5
						6
						7
						8
End: South						9
						10
	11					
	12.2					

Inspector	Reported By:	Client:
Report Date:24-10-1391	Date:24-10-1391	Date:
Sign:	Sign:	Sign:



Tube Inspection Report (ECT & RFT)

Client: [REDACTED]	Request: KNM-9100133-KN/A
Project: Air Cooler's tube inspection	Report No: [REDACTED]
Plant/Shop: [REDACTED]	Exam Date: 21-10-1391
Item Name: [REDACTED]	Page No.:

Tube Defect Report

Row-Column	1-36	1-37	1-38	1-39	1-40
Start : North	1				
	2				
	3				
Unit: Meter	4				
	5				
	6				
	7				
	8				
	9				
End: South	10				
	11				
	12.2				

Inspector	Reported By:	Client:
Report Date:24-10-1391	Date:24-10-1391	Date:
Sign:	Sign:	Sign:



Tube Inspection Report (ECT & RFT)

Client: [REDACTED]	Request: KNM-9100133-KN/A
Project: Air Cooler's tube inspection	Report No.: [REDACTED]
Plant/Shop: [REDACTED]	Exam Date: 21-10-1391
Item Name: [REDACTED]	Page No.:

Tube Defect Report

Row-Column	1-41	1-42	1-43	1-44	1-45	
Start : North	1					
	2					
	3					
Unit: Meter	4					
	5					
	6					
	7					
	8					
	9					
End: South	10					
	11					
	12.2					

Inspector	Reported By:	Client:
Report Date:24-10-1391	Date:24-10-1391	Date:
Sign:	Sign:	Sign:



Tube Inspection Report (ECT & RFT)

Client:		Request:	KNM-9100133-KN/A
Project:	Air Cooler's tube inspection	Report No:	
Plant/Shop:		Exam Date:	21-10-1391
Item Name:		Page No.:	

Tube Defect Report

Row-Column	1-46	1-47	1-48	1-49	1-50	
Start : North						
						1
						2
3						
Unit: Meter						4
						5
						6
						7
						8
						9
End: South						10
	11					
	12.2					

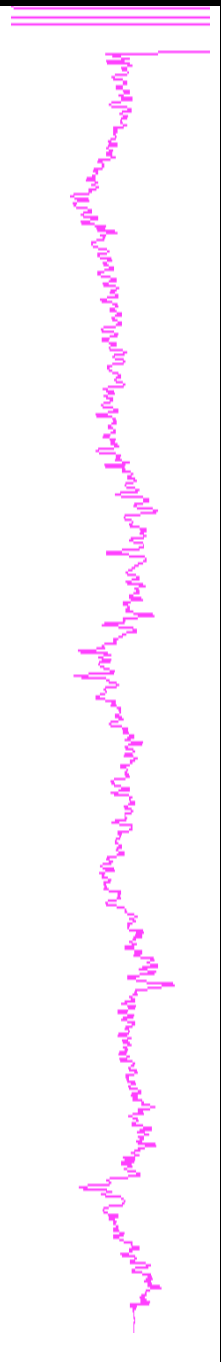
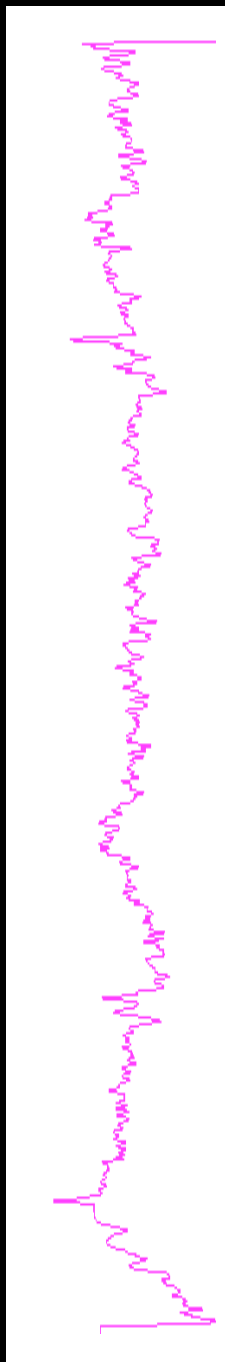
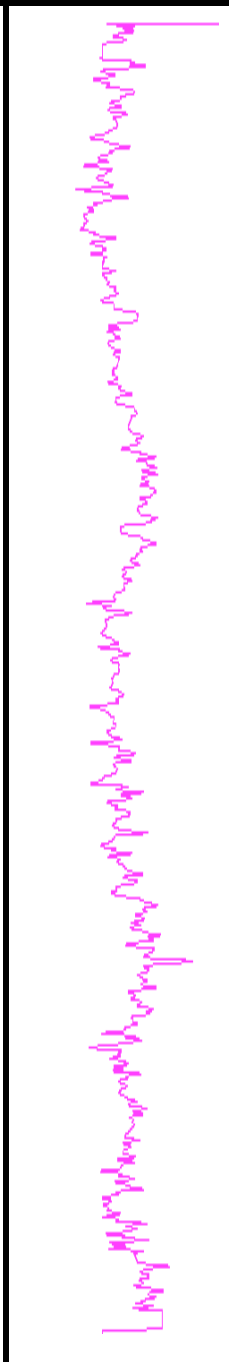
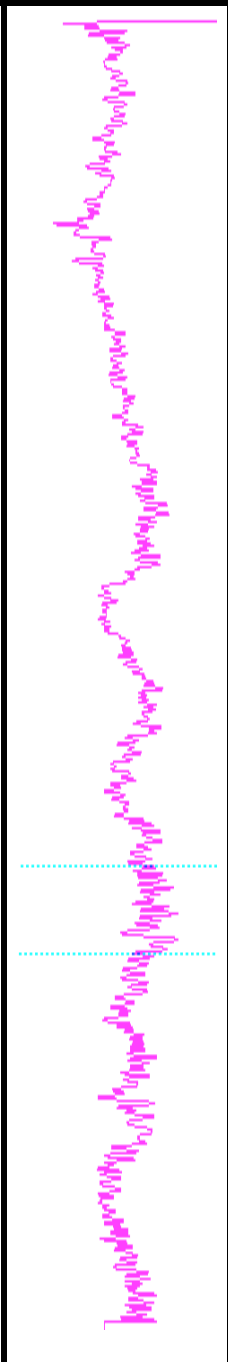

Inspector	Reported By:	Client:
Report Date:24-10-1391	Date:24-10-1391	Date:
Sign:	Sign:	Sign:



Tube Inspection Report (ECT & RFT)

Client:		Request:	KNM-9100133-KN/A
Project:	Air Cooler's tube inspection	Report No:	
Plant/Shop:		Exam Date:	21-10-1391
Item Name:		Page No.:	

Tube Defect Report

Row-Column		1-51	1-52	1-53	1-54	1-55
Start : North	1					
	2					
	3					
Unit: Meter	4					
	5					
	6					
	7					
	8					
	9					
End: South	10					
	11					
	12.2					

Inspector	Reported By:	Client:
Report Date:24-10-1391	Date:24-10-1391	Date:
Sign:	Sign:	Sign:



Tube Inspection Report (ECT & RFT)

Client: [REDACTED]	Request: KNM-9100133-KN/A
Project: Air Cooler's tube inspection	Report No: [REDACTED]
Plant/Shop: [REDACTED]	Exam Date: 21-10-1391
Item Name: [REDACTED]	Page No.:

Tube Defect Report

Row-Column		1-56	2-1	2-2	2-3	2-4
Start : North	1					
	2					
	3					
Unit: Meter	4					
	5					
	6					
	7					
	8					
	9					
End: South	10					
	11					
	12.2					

Inspector	Reported By:	Client:
Report Date:24-10-1391	Date:24-10-1391	Date:
Sign:	Sign:	Sign:



Tube Inspection Report (ECT & RFT)

Client: [REDACTED]	Request: KNM-9100133-KN/A
Project: Air Cooler's tube inspection	Report No: [REDACTED]
Plant/Shop: [REDACTED]	Exam Date: 21-10-1391
Item Name: [REDACTED]	Page No.:

Tube Defect Report

Row-Column	2-5	2-6	2-7	2-8	2-9
Start : North	1	[Graphical Data]	1	1	[Graphical Data]
	2		2	2	
	3		3	3	
Unit: Meter	4	[Graphical Data]	4	4	[Graphical Data]
	5		5	5	
	6		6	6	
	7		7	7	
	8		8	8	
	9		9	9	
End: South	10	[Graphical Data]	10	10	[Graphical Data]
	11		11	11	
	12.2		12.2	12.2	


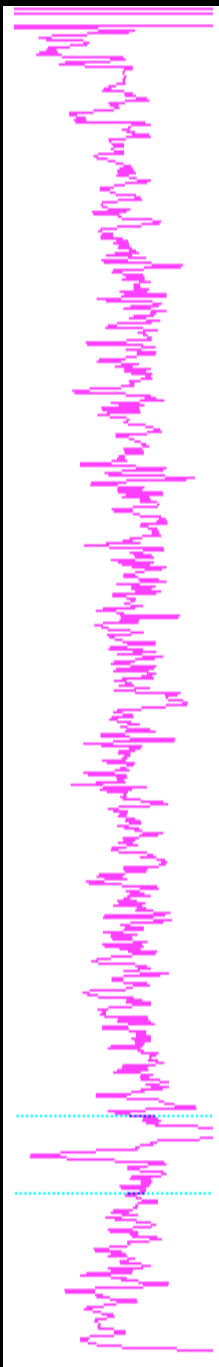


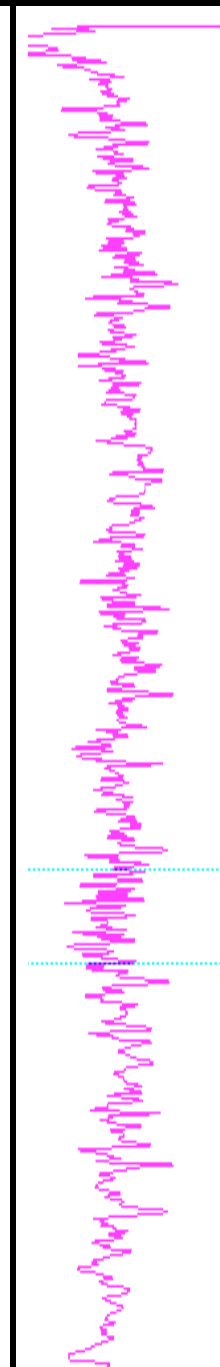
Inspector	Reported By:	Client:
Report Date:24-10-1391	Date:24-10-1391	Date:
Sign:	Sign:	Sign:



Tube Inspection Report (ECT & RFT)

Client:		Request:	KNM-9100133-KN/A
Project:	Air Cooler's tube inspection	Report No:	
Plant/Shop:		Exam Date:	21-10-1391
Item Name:		Page No.:	

Tube Defect Report

Row-Column		2-10	2-11	2-12	2-13	2-14
Start : North	1					
	2					
	3					
Unit: Meter	4					
	5					
	6					
	7					
	8					
	9					
End: South	10					
	11					
	12.2					

Inspector	Reported By:	Client:
Report Date:24-10-1391	Date:24-10-1391	Date:
Sign:	Sign:	Sign:



Tube Inspection Report (ECT & RFT)

Client: [REDACTED]	Request: KNM-9100133-KN/A
Project: Air Cooler's tube inspection	Report No: [REDACTED]
Plant/Shop: [REDACTED]	Exam Date: 21-10-1391
Item Name: [REDACTED]	Page No.:

Tube Defect Report

Row-Column		2-15	2-16	2-17	2-18	2-19
Start : North	1					
	2					
	3					
Unit: Meter	4					
	5					
	6					
	7					
	8					
	9					
End: South	10					
	11					
	12.2					

Inspector	Reported By:	Client:
Report Date:24-10-1391	Date:24-10-1391	Date:
Sign:	Sign:	Sign:



Tube Inspection Report (ECT & RFT)

Client:		Request:	KNM-9100133-KN/A
Project:	Air Cooler's tube inspection	Report No:	
Plant/Shop:		Exam Date:	21-10-1391
Item Name:		Page No.:	

Tube Defect Report

Row-Column		2-20	2-21	2-22	2-23	2-24
Start : North	1					
	2					
	3					
Unit: Meter	4					
	5					
	6					
	7					
	8					
	9					
End: South	10					
	11					
	12.2					


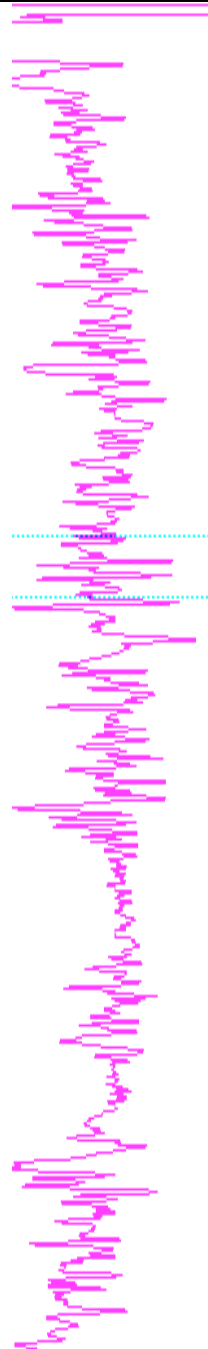
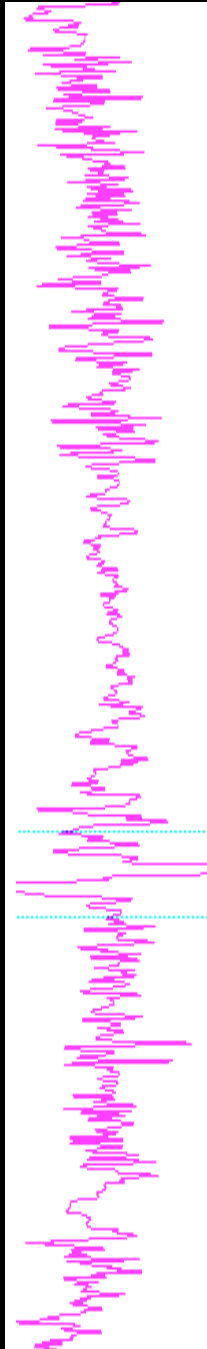
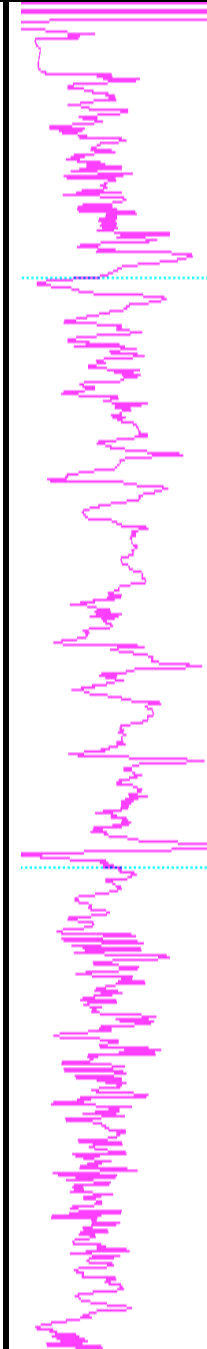

Inspector	Reported By:	Client:
Report Date:24-10-1391	Date:24-10-1391	Date:
Sign:	Sign:	Sign:



Tube Inspection Report (ECT & RFT)

Client: [Redacted]	Request: KNM-9100133-KN/A
Project: Air Cooler's tube inspection	Report No.: [Redacted]
Plant/Shop: [Redacted]	Exam Date: 21-10-1391
Item Name: [Redacted]	Page No.:

Tube Defect Report

Row-Column		2-25	2-26	2-27	2-28	2-29
Start : North	1					
	2					
	3					
Unit: Meter	4					
	5					
	6					
	7					
	8					
	9					
End: South	10					
	11					
	12.2					

Inspector	Reported By:	Client:
Report Date:24-10-1391	Date:24-10-1391	Date:
Sign:	Sign:	Sign:



Tube Inspection Report (ECT & RFT)

Client: [Redacted]	Request: KNM-9100133-KN/A
Project: Air Cooler's tube inspection	Report No.: [Redacted]
Plant/Shop: [Redacted]	Exam Date: 21-10-1391
Item Name: [Redacted]	Page No.:

Tube Defect Report

Row-Column		2-30	2-31	2-32	2-33	2-34
Start : North	1					
	2					
	3					
Unit: Meter	4					
	5					
	6					
	7					
	8					
End: South	9					
	10					
	11					
	12.2					




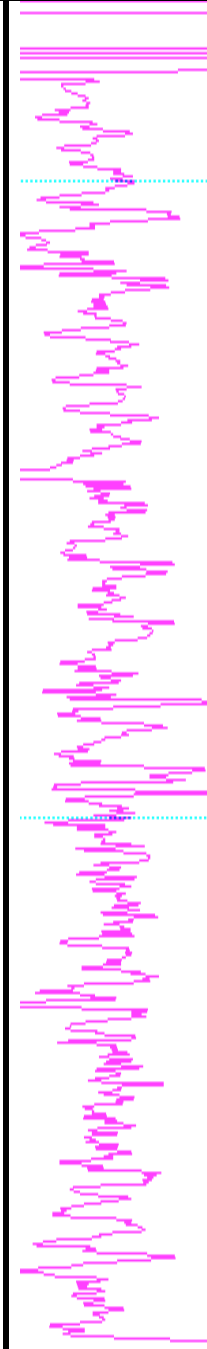
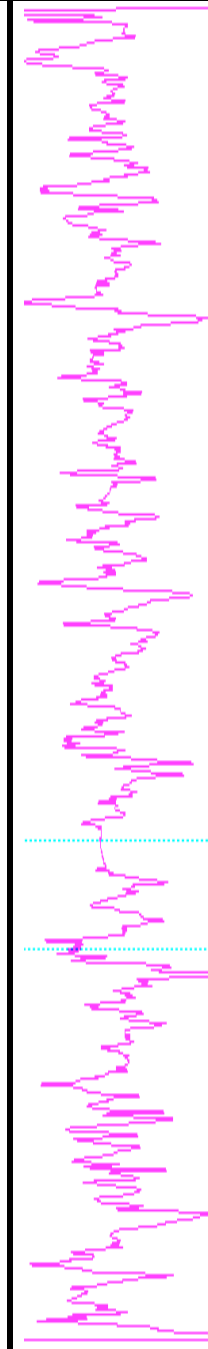
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Report Date:24-10-1391	Date:24-10-1391	Date:
Sign:	Sign:	Sign:



Tube Inspection Report (ECT & RFT)

Client: [Redacted]	Request: KNM-9100133-KN/A
Project: Air Cooler's tube inspection	Report No.: [Redacted]
Plant/Shop: [Redacted]	Exam Date: 21-10-1391
Item Name: [Redacted]	Page No.:

Tube Defect Report

Row-Column		2-35	2-36	2-37	2-38	2-39
Start : North	1					
	2					
	3					
Unit: Meter	4					
	5					
	6					
	7					
	8					
End: South	9					
	10					
	11					
	12.2					

Inspector	Reported By:	Client:
Report Date:24-10-1391	Date:24-10-1391	Date:
Sign:	Sign:	Sign:



Tube Inspection Report (ECT & RFT)

Client: [REDACTED]	Request: KNM-9100133-KN/A
Project: Air Cooler's tube inspection	Report No.: [REDACTED]
Plant/Shop: [REDACTED]	Exam Date: 21-10-1391
Item Name: [REDACTED]	Page No.:

Tube Defect Report

Row-Column		2-40	2-41	2-42	2-43	2-44
Start : North	1					
	2					
	3					
Unit: Meter	4					
	5					
	6					
	7					
	8					
	9					
End: South	10					
	11					
	12.2					

Inspector	Reported By:	Client:
Report Date:24-10-1391	Date:24-10-1391	Date:
Sign:	Sign:	Sign:



Tube Inspection Report (ECT & RFT)

Client: [Redacted]	Request: KNM-9100133-KN/A
Project: Air Cooler's tube inspection	Report No.: [Redacted]
Plant/Shop: [Redacted]	Exam Date: 21-10-1391
Item Name: [Redacted]	Page No.: [Redacted]

Tube Defect Report

Row-Column		2-45	2-46	2-47	2-48	2-49
Start : North	1					
	2					
	3					
Unit: Meter	4					
	5					
	6					
	7					
	8					
	9					
End: South	10					
	11					
	12.2					


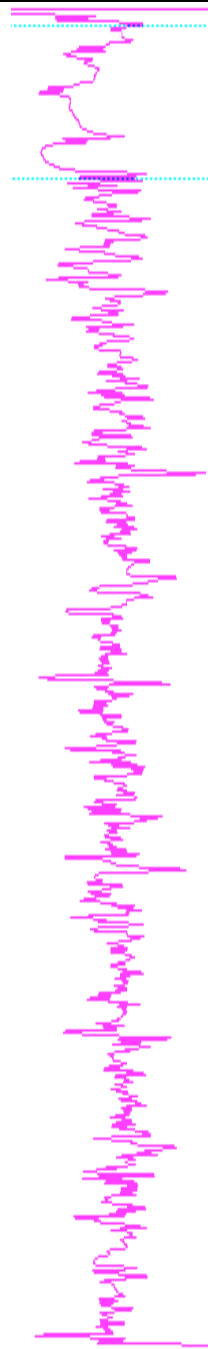
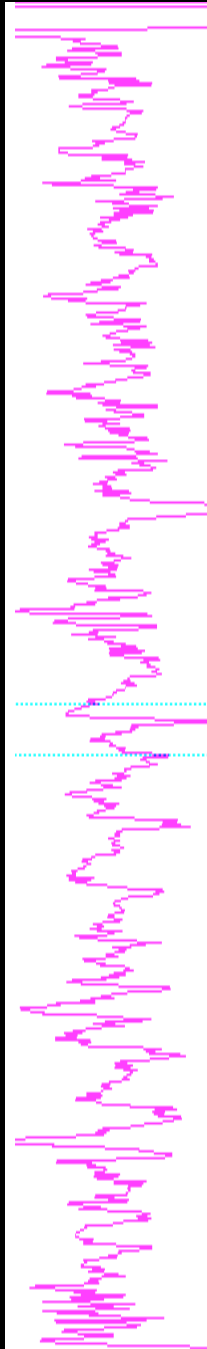
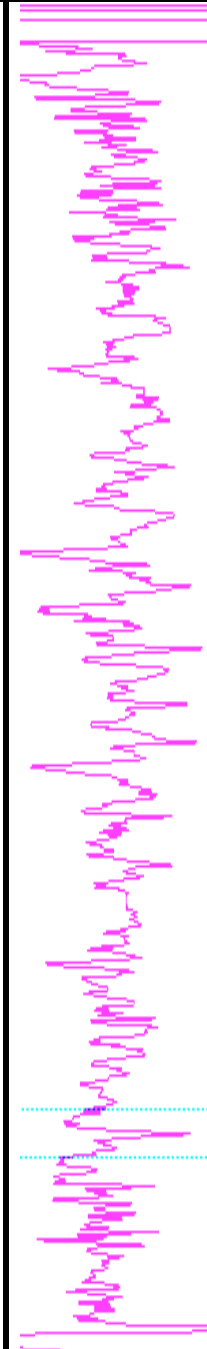
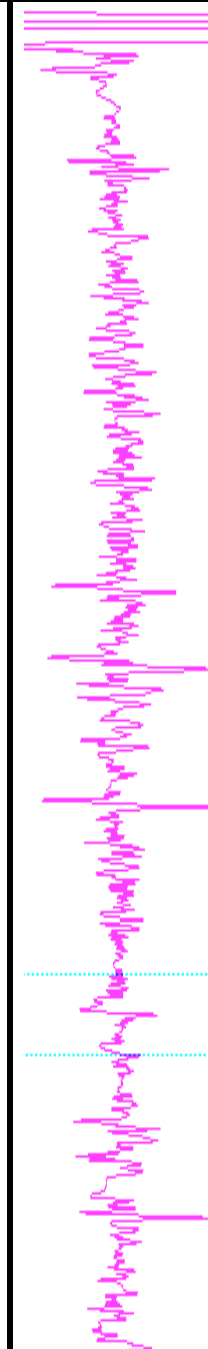
Inspector	Reported By:	Client:
Report Date:24-10-1391	Date:24-10-1391	Date:
Sign:	Sign:	Sign:



Tube Inspection Report (ECT & RFT)

Client: [REDACTED]	Request: KNM-9100133-KN/A
Project: Air Cooler's tube inspection	Report No.: [REDACTED]
Plant/Shop: [REDACTED]	Exam Date: 21-10-1391
Item Name: [REDACTED]	Page No.:

Tube Defect Report

Row-Column		2-50	2-51	2-52	2-53	2-54
Start : North	1					
	2					
	3					
Unit: Meter	4					
	5					
	6					
	7					
	8					
	9					
End: South	10					
	11					
	12.2					

Inspector	Reported By:	Client:
Report Date:24-10-1391	Date:24-10-1391	Date:
Sign:	Sign:	Sign:



Tube Inspection Report (ECT & RFT)

Client: Project: Air Cooler's tube inspection Plant/Shop: Item Name: 	Request: KNM-9100133-KN/A Report No: Exam Date: 21-10-1391 Page No.:
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Tube Defect Report

Row-Column		2-55	2-56	3-1	3-2	3-3
Start : North	1					
	2					
	3					
Unit: Meter	4					
	5					
	6					
	7					
	8					
	9					
End: South	10					
	11					
	12.2					

Inspector	Reported By:	Client:
Report Date:24-10-1391	Date:24-10-1391	Date:
Sign:	Sign:	Sign:



Tube Inspection Report (ECT & RFT)

Client: [REDACTED]	Request: KNM-9100133-KN/A
Project: Air Cooler's tube inspection	Report No.: [REDACTED]
Plant/Shop: [REDACTED]	Exam Date: 21-10-1391
Item Name: [REDACTED]	Page No.:

Tube Defect Report

Row-Column	3-4	3-5	3-6	3-7	3-8
Start : North	1	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
	2				
	3				
Unit: Meter	4	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
	5				
	6				
	7				
	8				
	9				
End: South	10	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
	11				
	12.2				




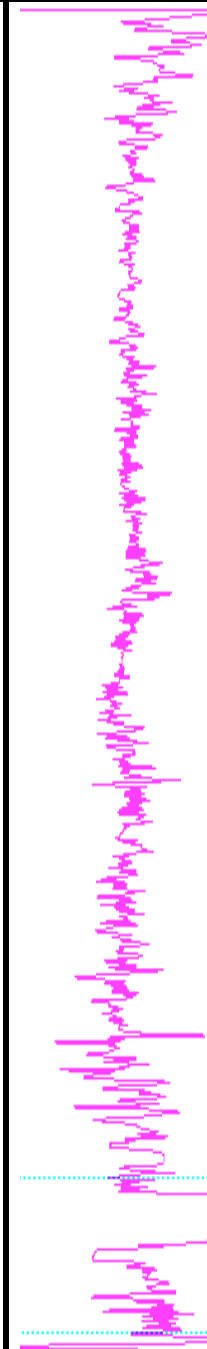
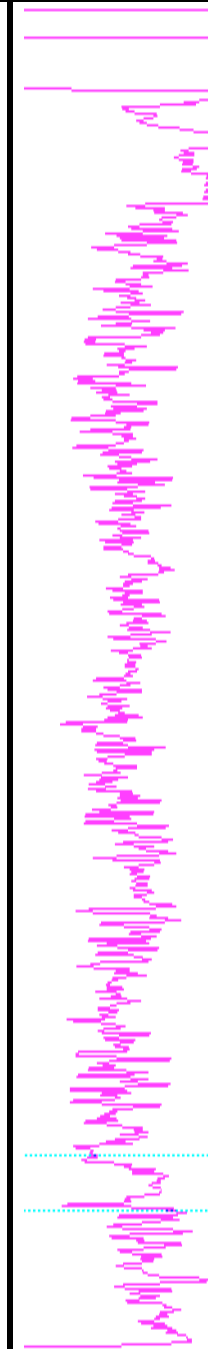
Inspector	Reported By:	Client:
Report Date:24-10-1391	Date:24-10-1391	Date:
Sign:	Sign:	Sign:



Tube Inspection Report (ECT & RFT)

Client: [REDACTED]	Request: KNM-9100133-KN/A
Project: Air Cooler's tube inspection	Report No: [REDACTED]
Plant/Shop: [REDACTED]	Exam Date: 21-10-1391
Item Name: [REDACTED]	Page No.:

Tube Defect Report

Row-Column		3-9	3-10	3-11	3-12	3-13
Start : North	1					
	2					
	3					
Unit: Meter	4					
	5					
	6					
	7					
	8					
	9					
End: South	10					
	11					
	12.2					

Inspector	Reported By:	Client:
Report Date:24-10-1391	Date:24-10-1391	Date:
Sign:	Sign:	Sign:



Tube Inspection Report (ECT & RFT)

Client:		Request:	KNM-9100133-KN/A
Project:	Air Cooler's tube inspection	Report No:	
Plant/Shop:		Exam Date:	21-10-1391
Item Name:		Page No.:	

Tube Defect Report

Row-Column	3-14	3-15	3-16	3-17	3-18
Start : North	1	plugged	plugged	plugged	plugged
	2				
	3				
Unit: Meter	4				
	5				
	6				
	7				
	8				
	9				
End: South	10				
	11				
	12.2				




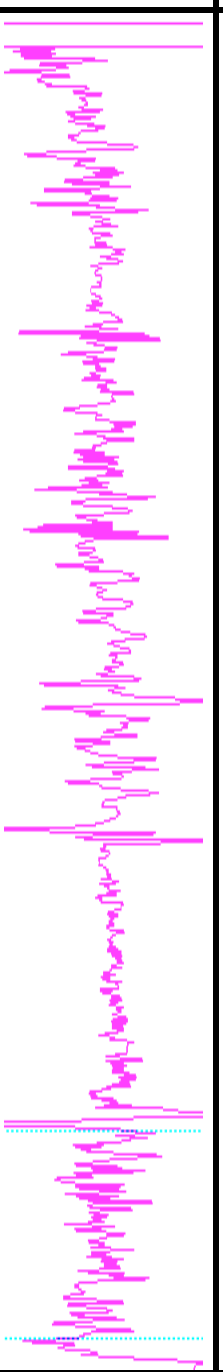

Inspector	Reported By:	Client:
Report Date:24-10-1391	Date:24-10-1391	Date:
Sign:	Sign:	Sign:



Tube Inspection Report (ECT & RFT)

Client: Project: Air Cooler's tube inspection Plant/Shop: Item Name: 	Request: KNM-9100133-KN/A Report No: Exam Date: 21-10-1391 Page No.:
--	--

Tube Defect Report

Row-Column	3-19	3-20	3-21	3-22	3-23	
Start : North	1					
	2					
	3					
Unit: Meter	4					
	5					
	6					
	7					
	8					
	9					
End: South	10					
	11					
	12.2					

Inspector	Reported By:	Client:
Report Date:24-10-1391	Date:24-10-1391	Date:
Sign:	Sign:	Sign:



Tube Inspection Report (ECT & RFT)

Client: [REDACTED]	Request: KNM-9100133-KN/A
Project: Air Cooler's tube inspection	Report No: [REDACTED]
Plant/Shop: [REDACTED]	Exam Date: 21-10-1391
Item Name: [REDACTED]	Page No.:

Tube Defect Report

Row-Column		3-24	3-25	3-26	3-27	3-28
Start : North	1					
	2					
	3					
Unit: Meter	4					
	5					
	6					
	7					
	8					
	9					
End: South	10					
	11					
	12.2					


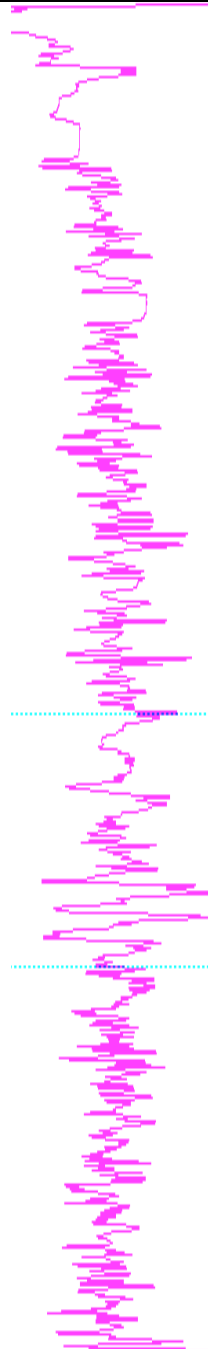
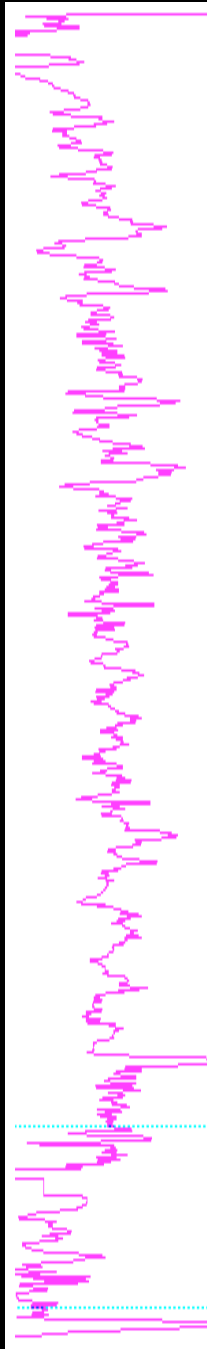
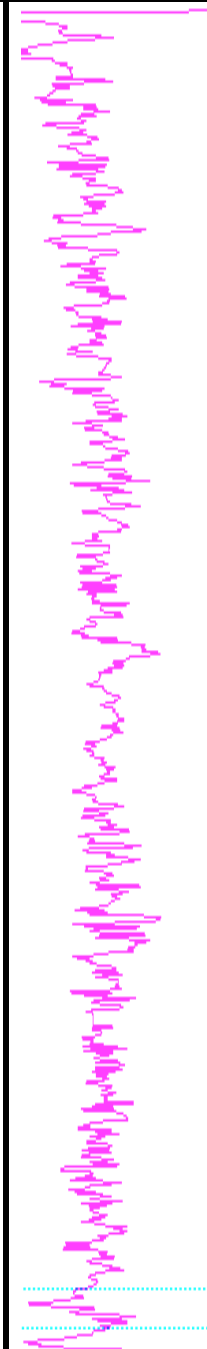

Inspector	Reported By:	Client:
Report Date:24-10-1391	Date:24-10-1391	Date:
Sign:	Sign:	Sign:



Tube Inspection Report (ECT & RFT)

Client:		Request:	KNM-9100133-KN/A
Project:	Air Cooler's tube inspection	Report No:	
Plant/Shop:		Exam Date:	21-10-1391
Item Name:		Page No.:	

Tube Defect Report

Row-Column		3-29	3-30	3-31	3-32	3-33
Start : North	1					
	2					
	3					
Unit: Meter	4					
	5					
	6					
	7					
	8					
	9					
End: South	10					
	11					
	12.2					


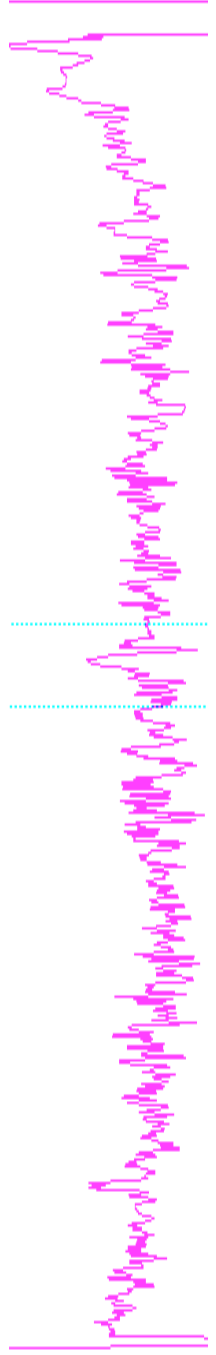
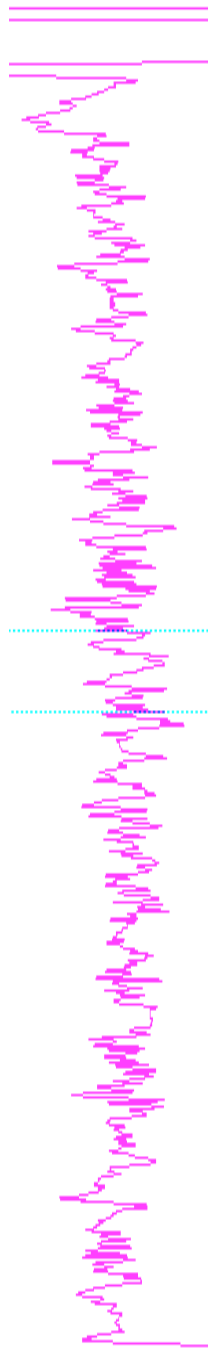


Inspector	Reported By:	Client:
Report Date:24-10-1391	Date:24-10-1391	Date:
Sign:	Sign:	Sign:



Tube Inspection Report (ECT & RFT)

Client:		Request:	KNM-9100133-KN/A
Project:	Air Cooler's tube inspection	Report No:	
Plant/Shop:		Exam Date:	21-10-1391
Item Name:		Page No.:	

Tube Defect Report

Row-Column		3-34	3-35	3-36	3-37	3-38
Start : North	1					
	2					
	3					
Unit: Meter	4					
	5					
	6					
	7					
	8					
	9					
End: South	10					
	11					
	12.2					

Inspector	Reported By:	Client:
Report Date:24-10-1391	Date:24-10-1391	Date:
Sign:	Sign:	Sign:



Tube Inspection Report (ECT & RFT)

Client:		Request:	KNM-9100133-KN/A
Project:	Air Cooler's tube inspection	Report No:	
Plant/Shop:		Exam Date:	21-10-1391
Item Name:		Page No.:	

Tube Defect Report

Row-Column	3-39	3-40	3-41	3-42	3-43
Start : North	1				
	2				
	3				
Unit: Meter	4				
	5				
	6				
	7				
	8				
	9				
End: South	10				
	11				
	12.2				



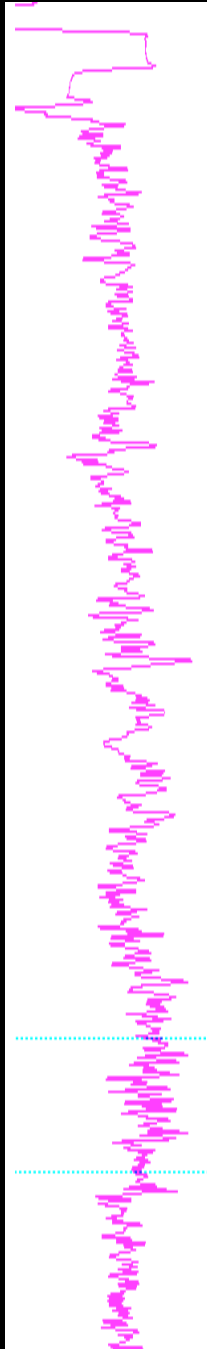
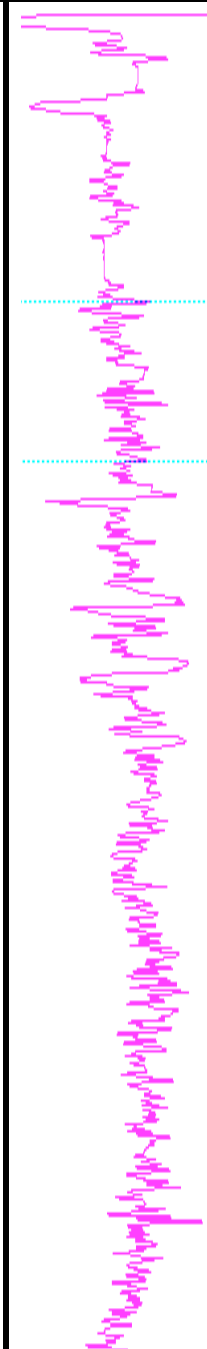
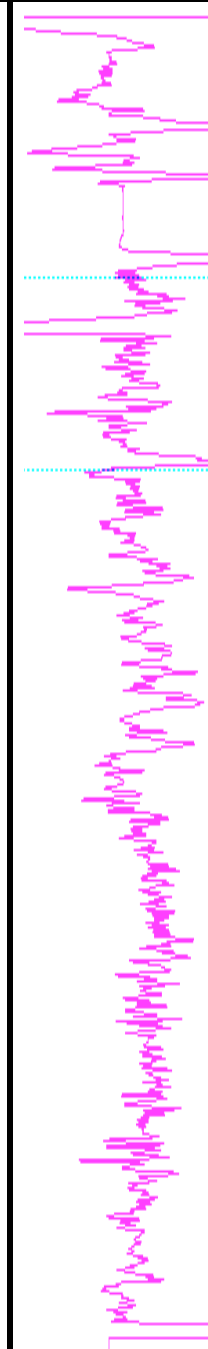
Inspector	Reported By:	Client:
Report Date:24-10-1391	Date:24-10-1391	Date:
Sign:	Sign:	Sign:



Tube Inspection Report (ECT & RFT)

Client: [REDACTED]	Request: KNM-9100133-KN/A
Project: Air Cooler's tube inspection	Report No.: [REDACTED]
Plant/Shop: [REDACTED]	Exam Date: 21-10-1391
Item Name: [REDACTED]	Page No.:

Tube Defect Report

Row-Column	3-44	3-45	3-46	3-47	3-48	
Start : North	1					
	2					
	3					
Unit: Meter	4					
	5					
	6					
	7					
	8					
	9					
End: South	10					
	11					
	12.2					

Inspector	Reported By:	Client:
Report Date:24-10-1391	Date:24-10-1391	Date:
Sign:	Sign:	Sign:



Tube Inspection Report (ECT & RFT)

Client:		Request:	KNM-9100133-KN/A
Project:	Air Cooler's tube inspection	Report No:	
Plant/Shop:		Exam Date:	21-10-1391
Item Name:		Page No.:	

Tube Defect Report

Row-Column	3-49	3-50	3-51	3-52	3-53	
Start : North	1					
	2					
	3					
Unit: Meter	4					
	5					
	6					
	7					
	8					
	9					
End: South	10					
	11					
	12.2					

Inspector	Reported By:	Client:
Report Date:24-10-1391	Date:24-10-1391	Date:
Sign:	Sign:	Sign:



Tube Inspection Report (ECT & RFT)

Client:		Request:	KNM-9100133-KN/A
Project:	Air Cooler's tube inspection	Report No:	
Plant/Shop:		Exam Date:	21-10-1391
Item Name:		Page No.:	

Tube Defect Report

Row-Column	3-54	3-55	3-56	4-1	4-2
Start : North	1				
	2				
	3				
Unit: Meter	4				
	5				
	6				
	7				
	8				
	9				
End: South	10				
	11				
	12.2				

Inspector	Reported By:	Client:
Report Date:24-10-1391	Date:24-10-1391	Date:
Sign:	Sign:	Sign:



Tube Inspection Report (ECT & RFT)

Client:		Request:	KNM-9100133-KN/A
Project:	Air Cooler's tube inspection	Report No:	
Plant/Shop:		Exam Date:	21-10-1391
Item Name:		Page No.:	

Tube Defect Report

Row-Column		4-3	4-4	4-5	4-6	4-7
Start : North	1					
	2					
	3					
Unit: Meter	4					
	5					
	6					
	7					
	8					
	9					
End: South	10					
	11					
	12.2					

Inspector	Reported By:	Client:
Report Date:24-10-1391	Date:24-10-1391	Date:
Sign:	Sign:	Sign:



Tube Inspection Report (ECT & RFT)

Client: [Redacted]	Request: KNM-9100133-KN/A
Project: Air Cooler's tube inspection	Report No: [Redacted]
Plant/Shop: [Redacted]	Exam Date: 21-10-1391
Item Name: [Redacted]	Page No.:

Tube Defect Report

Row-Column		4-8	4-9	4-10	4-11	4-12
Start : North	1					
	2					
	3					
Unit: Meter	4					
	5					
	6					
	7					
	8					
	9					
End: South	10					
	11					
	12.2					

Inspector	Reported By:	Client:
Report Date:24-10-1391	Date:24-10-1391	Date:
Sign:	Sign:	Sign:



Tube Inspection Report (ECT & RFT)

Client:		Request:	KNM-9100133-KN/A
Project:	Air Cooler's tube inspection	Report No:	
Plant/Shop:		Exam Date:	21-10-1391
Item Name:		Page No.:	

Tube Defect Report

Row-Column	4-13	4-14	4-15	4-16	4-17
Start : North	1				
	2				
	3				
Unit: Meter	4				
	5				
	6				
	7				
	8				
	9				
End: South	10				
	11				
	12.2				



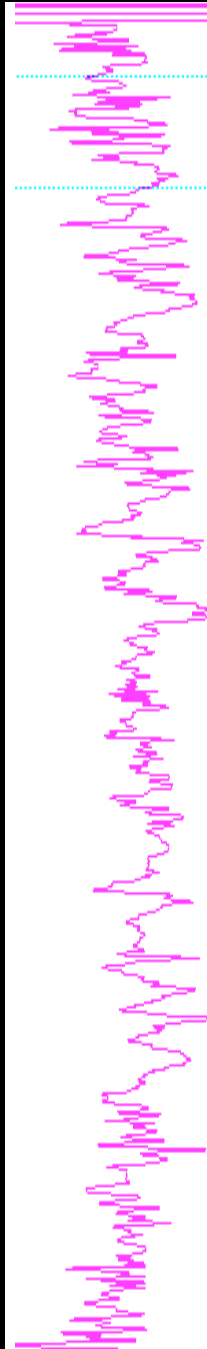

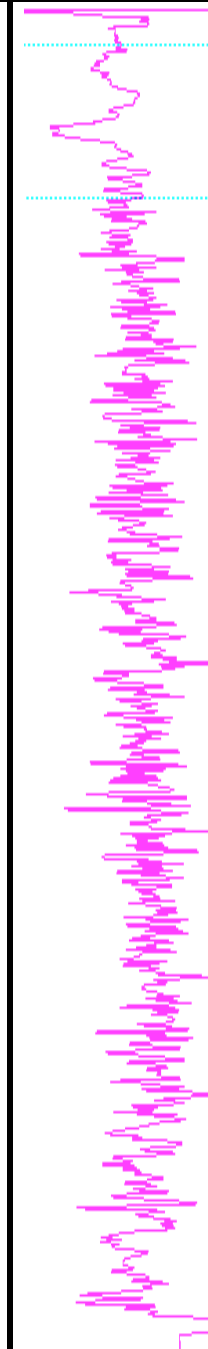
Inspector	Reported By:	Client:
Report Date:24-10-1391	Date:24-10-1391	Date:
Sign:	Sign:	Sign:



Tube Inspection Report (ECT & RFT)

Client:		Request:	KNM-9100133-KN/A
Project:	Air Cooler's tube inspection	Report No:	
Plant/Shop:		Exam Date:	21-10-1391
Item Name:		Page No.:	

Tube Defect Report

Row-Column		4-18	4-19	4-20	4-21	4-22
Start : North	1					
	2					
	3					
Unit: Meter	4					
	5					
	6					
	7					
	8					
	9					
End: South	10					
	11					
	12.2					

Inspector	Reported By:	Client:
Report Date:24-10-1391	Date:24-10-1391	Date:
Sign:	Sign:	Sign:



Tube Inspection Report (ECT & RFT)

Client:		Request:	KNM-9100133-KN/A
Project:	Air Cooler's tube inspection	Report No:	
Plant/Shop:		Exam Date:	21-10-1391
Item Name:		Page No.:	

Tube Defect Report

Row-Column		4-23	4-24	4-25	4-26	4-27
Start : North	1					
	2					
	3					
Unit: Meter	4					
	5					
	6					
	7					
	8					
	9					
End: South	10					
	11					
	12.2					






Inspector	Reported By:	Client:
Report Date:24-10-1391	Date:24-10-1391	Date:
Sign:	Sign:	Sign:



Tube Inspection Report (ECT & RFT)

Client:		Request:	KNM-9100133-KN/A
Project:	Air Cooler's tube inspection	Report No:	
Plant/Shop:		Exam Date:	21-10-1391
Item Name:		Page No.:	

Tube Defect Report

Row-Column		4-28	4-29	4-30	4-31	4-32
Start : North	1					
	2					
	3					
Unit: Meter	4					
	5					
	6					
	7					
	8					
End: South	9					
	10					
	11					
	12.2					

Inspector	Reported By:	Client:
Report Date:24-10-1391	Date:24-10-1391	Date:
Sign:	Sign:	Sign:



Tube Inspection Report (ECT & RFT)

Client: [Redacted]	Request: KNM-9100133-KN/A
Project: Air Cooler's tube inspection	Report No.: [Redacted]
Plant/Shop: [Redacted]	Exam Date: 21-10-1391
Item Name: [Redacted]	Page No.:

Tube Defect Report

Row-Column		4-33	4-34	4-35	4-36	4-37
Start : North	1					
	2					
	3					
Unit: Meter	4					
	5					
	6					
	7					
	8					
	9					
End: South	10					
	11					
	12.2					




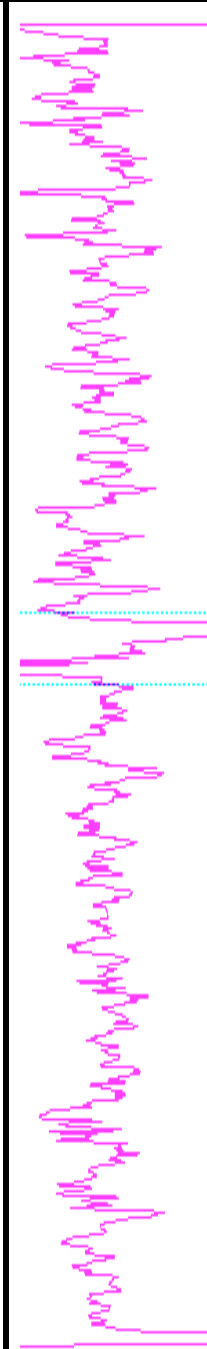

Inspector	Reported By:	Client:
Report Date:24-10-1391	Date:24-10-1391	Date:
Sign:	Sign:	Sign:



Tube Inspection Report (ECT & RFT)

Client: [REDACTED]	Request: KNM-9100133-KN/A
Project: Air Cooler's tube inspection	Report No.: [REDACTED]
Plant/Shop: [REDACTED]	Exam Date: 21-10-1391
Item Name: [REDACTED]	Page No.:

Tube Defect Report

Row-Column		4-38	4-39	4-40	4-41	4-42
Start : North	1					
	2					
	3					
Unit: Meter	4					
	5					
	6					
	7					
	8					
	9					
End: South	10					
	11					
	12.2					

Inspector	Reported By:	Client:
Report Date:24-10-1391	Date:24-10-1391	Date:
Sign:	Sign:	Sign:



Tube Inspection Report (ECT & RFT)

Client: [REDACTED]	Request: KNM-9100133-KN/A
Project: Air Cooler's tube inspection	Report No: [REDACTED]
Plant/Shop: [REDACTED]	Exam Date: 21-10-1391
Item Name: [REDACTED]	Page No.: [REDACTED]

Tube Defect Report

Row-Column		4-43	4-44	4-45	4-46	4-47
Start : North	1					
	2					
	3					
Unit: Meter	4					
	5					
	6					
	7					
	8					
	9					
End: South	10					
	11					
	12.2					

Inspector	Reported By:	Client:
Report Date:24-10-1391	Date:24-10-1391	Date:
Sign:	Sign:	Sign:



Tube Inspection Report (ECT & RFT)

Client: [Redacted]	Request: KNM-9100133-KN/A
Project: Air Cooler's tube inspection	Report No.: [Redacted]
Plant/Shop: [Redacted]	Exam Date: 21-10-1391
Item Name: [Redacted]	Page No.:

Tube Defect Report

Row-Column	4-48	4-49	4-50	4-51	4-52
Start : North	1				
	2				
	3				
Unit: Meter	4				
	5				
	6				
	7				
	8				
	9				
End: South	10				
	11				
	12.2				


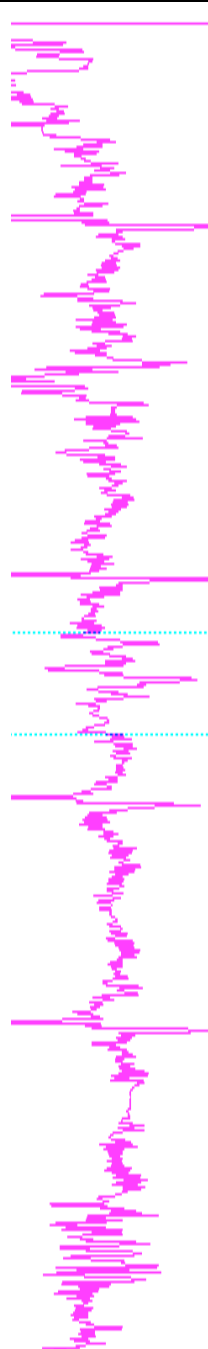


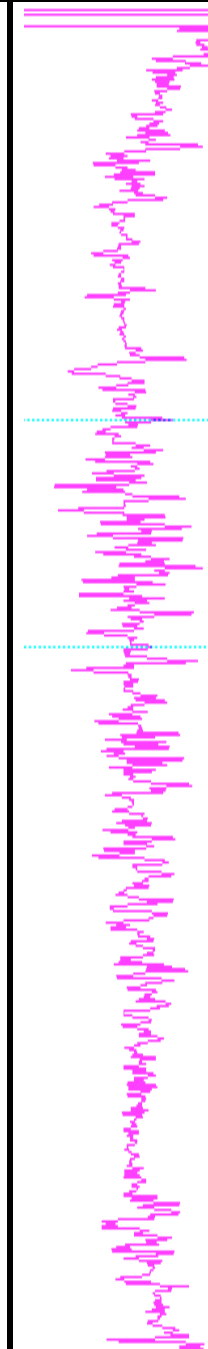
Inspector	Reported By:	Client:
Report Date:24-10-1391	Date:24-10-1391	Date:
Sign:	Sign:	Sign:



Tube Inspection Report (ECT & RFT)

Client:		Request:	KNM-9100133-KN/A
Project:	Air Cooler's tube inspection	Report No:	
Plant/Shop:		Exam Date:	21-10-1391
Item Name:		Page No.:	

Tube Defect Report

Row-Column		4-53	4-54	4-55	4-56	5-1
Start : North	1					
	2					
	3					
Unit: Meter	4					
	5					
	6					
	7					
	8					
End: South	9					
	10					
	11					
	12.2					

Inspector	Reported By:	Client:
Report Date:24-10-1391	Date:24-10-1391	Date:
Sign:	Sign:	Sign:



Tube Inspection Report (ECT & RFT)

Client:		Request:	KNM-9100133-KN/A
Project:	Air Cooler's tube inspection	Report No:	
Plant/Shop:		Exam Date:	21-10-1391
Item Name:		Page No.:	

Tube Defect Report

Row-Column		5-2	5-3	5-4	5-5	5-6
Start : North	1					
	2					
	3					
Unit: Meter	4					
	5					
	6					
	7					
	8					
End: South	9					
	10					
	11					
	12.2					

Inspector	Reported By:	Client:
Report Date:24-10-1391	Date:24-10-1391	Date:
Sign:	Sign:	Sign:



Tube Inspection Report (ECT & RFT)

Client:		Request:	KNM-9100133-KN/A
Project:	Air Cooler's tube inspection	Report No:	
Plant/Shop:		Exam Date:	21-10-1391
Item Name:		Page No.:	

Tube Defect Report																
Row-Column	5-7	5-8	5-9	5-10	5-11											
Start : North	1															
	2															
	3															
Unit: Meter	4															
	5															
	6															
	7															
	8															
	9															
End: South	10															
	11															
	12.2															

Inspector	Reported By:	Client:
Report Date:24-10-1391	Date:24-10-1391	Date:
Sign:	Sign:	Sign:



Tube Inspection Report (ECT & RFT)

Client:		Request:	KNM-9100133-KN/A
Project:	Air Cooler's tube inspection	Report No:	
Plant/Shop:		Exam Date:	21-10-1391
Item Name:		Page No.:	

Tube Defect Report

Row-Column		5-12	5-13	5-14	5-15	5-16
Start : North	1					
	2					
	3					
Unit: Meter	4					
	5					
	6					
	7					
	8					
	9					
End: South	10					
	11					
	12.2					






Inspector	Reported By:	Client:
Report Date:24-10-1391	Date:24-10-1391	Date:
Sign:	Sign:	Sign:



Tube Inspection Report (ECT & RFT)

Client:		Request:	KNM-9100133-KN/A
Project:	Air Cooler's tube inspection	Report No:	
Plant/Shop:		Exam Date:	21-10-1391
Item Name:		Page No.:	

Tube Defect Report

Row-Column		5-17	5-18	5-19	5-20	5-21
Start : North	1					
	2					
	3					
Unit: Meter	4					
	5					
	6					
	7					
	8					
	9					
End: South	10					
	11					
	12.2					

Inspector	Reported By:	Client:
Report Date:24-10-1391	Date:24-10-1391	Date:
Sign:	Sign:	Sign:



Tube Inspection Report (ECT & RFT)

Client:		Request:	KNM-9100133-KN/A
Project:	Air Cooler's tube inspection	Report No:	
Plant/Shop:		Exam Date:	21-10-1391
Item Name:		Page No.:	

Tube Defect Report

Row-Column		5-22	5-23	5-24	5-25	5-26
Start : North	1					
	2					
	3					
Unit: Meter	4					
	5					
	6					
	7					
	8					
	9					
End: South	10					
	11					
	12.2					

Inspector	Reported By:	Client:
Report Date:24-10-1391	Date:24-10-1391	Date:
Sign:	Sign:	Sign:



Tube Inspection Report (ECT & RFT)

Client:		Request:	KNM-9100133-KN/A
Project:	Air Cooler's tube inspection	Report No:	
Plant/Shop:		Exam Date:	21-10-1391
Item Name:		Page No.:	

Tube Defect Report

Row-Column		5-27	5-28	5-29	5-30	5-31
Start : North	1					
	2					
	3					
Unit: Meter	4					
	5					
	6					
	7					
	8					
	9					
End: South	10					
	11					
	12.2					

Inspector	Reported By:	Client:
Report Date:24-10-1391	Date:24-10-1391	Date:
Sign:	Sign:	Sign:



Tube Inspection Report (ECT & RFT)

Client:		Request:	KNM-9100133-KN/A
Project:	Air Cooler's tube inspection	Report No:	
Plant/Shop:		Exam Date:	21-10-1391
Item Name:		Page No.:	

Tube Defect Report

Row-Column	5-32	5-33	5-34	5-35	5-36
Start : North	1				
	2				
	3				
Unit: Meter	4				
	5				
	6				
	7				
	8				
	9				
End: South	10				
	11				
	12.2				

Inspector	Reported By:	Client:
Report Date:24-10-1391	Date:24-10-1391	Date:
Sign:	Sign:	Sign:



Tube Inspection Report (ECT & RFT)

Client: [REDACTED]	Request: KNM-9100133-KN/A
Project: Air Cooler's tube inspection	Report No: [REDACTED]
Plant/Shop: [REDACTED]	Exam Date: 21-10-1391
Item Name: [REDACTED]	Page No.:

Tube Defect Report

Row-Column		5-37	5-38	5-39	5-40	5-41
Start : North	1					
	2					
	3					
Unit: Meter	4					
	5					
	6					
	7					
	8					
End: South	9					
	10					
	11					
	12.2					

Inspector	Reported By:	Client:
Report Date:24-10-1391	Date:24-10-1391	Date:
Sign:	Sign:	Sign:



Tube Inspection Report (ECT & RFT)

Client: [REDACTED]	Request: KNM-9100133-KN/A
Project: Air Cooler's tube inspection	Report No: [REDACTED]
Plant/Shop: [REDACTED]	Exam Date: 21-10-1391
Item Name: [REDACTED]	Page No.: [REDACTED]

Tube Defect Report

Row-Column		5-42	5-43	5-44	5-45	5-46
Start : North	1					
	2					
	3					
Unit: Meter	4					
	5					
	6					
	7					
	8					
	9					
End: South	10					
	11					
	12.2					

Inspector	Reported By:	Client:
Report Date:24-10-1391	Date:24-10-1391	Date:
Sign:	Sign:	Sign:



Tube Inspection Report (ECT & RFT)

Client:		Request:	KNM-9100133-KN/A
Project:	Air Cooler's tube inspection	Report No:	
Plant/Shop:		Exam Date:	21-10-1391
Item Name:		Page No.:	

Tube Defect Report

Row-Column	5-47	5-48	5-49	5-50	5-51	
Start : North	1					
	2					
	3					
Unit: Meter	4					
	5					
	6					
	7					
	8					
End: South	9					
	10					
	11					
	12.2					




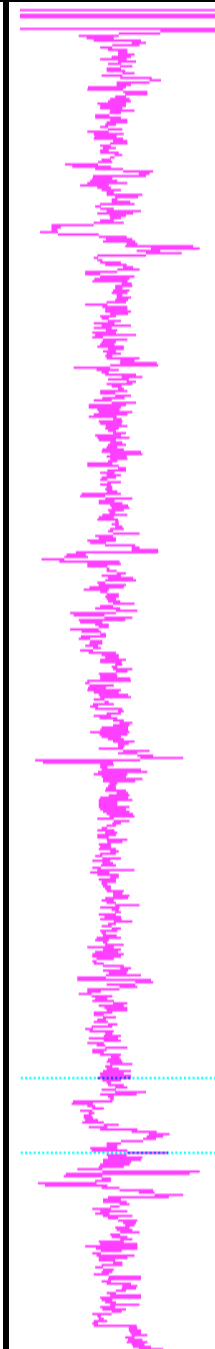
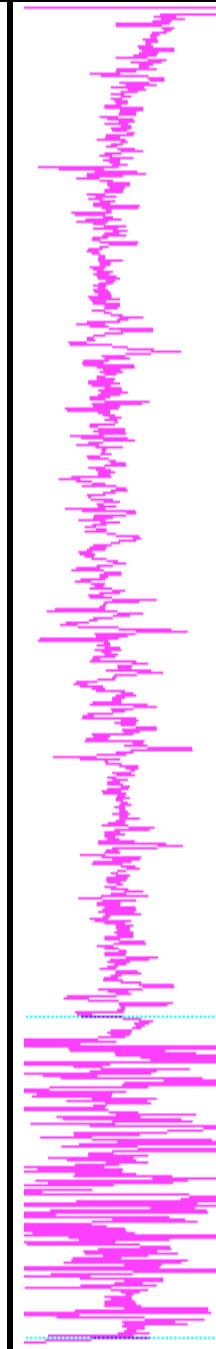
Inspector	Reported By:	Client:
Report Date:24-10-1391	Date:24-10-1391	Date:
Sign:	Sign:	Sign:



Tube Inspection Report (ECT & RFT)

Client:		Request:	KNM-9100133-KN/A
Project:	Air Cooler's tube inspection	Report No:	
Plant/Shop:		Exam Date:	21-10-1391
Item Name:		Page No.:	

Tube Defect Report

Row-Column		5-52	5-53	5-54	5-55	5-56
Start : North	1					
	2					
	3					
Unit: Meter	4					
	5					
	6					
	7					
	8					
End: South	9					
	10					
	11					
	12.2					

Inspector	Reported By:	Client:
Report Date:24-10-1391	Date:24-10-1391	Date:
Sign:	Sign:	Sign: