

出國報告（出國類別：其他）

龍門計畫國外製造機械設備製程中品質查驗

服務機關：台灣電力公司核能安全處

姓名職稱：邱雲長/主管

派赴國家：韓國

出國期間：95年10月15日至95年10月26日

報告日期：95年12月12日

出國報告審核表

出國報告名稱：龍門計畫國外製造機械設備製程中品質查驗		
出國人姓名(2人以上，以1人為代表)	職稱	服務單位
邱雲長	主管	台灣電力公司核能安全處
出國期間：95年10月15日至95年10月26日		報告繳交日期：95年12月12日
出國計畫主辦機關審核意見	<input checked="" type="checkbox"/> 1. 依限繳交出國報告 <input checked="" type="checkbox"/> 2. 格式完整（本文必須具備「目地」、「過程」、「心得」、「建議事項」） <input checked="" type="checkbox"/> 3. 內容充實完備。 <input checked="" type="checkbox"/> 4. 建議具參考價值 <input type="checkbox"/> 5. 送本機關參考或研辦 <input type="checkbox"/> 6. 送上級機關參考 <input type="checkbox"/> 7. 退回補正，原因： <input type="checkbox"/> <input type="checkbox"/> 不符原核定出國計畫 <input type="checkbox"/> <input type="checkbox"/> 以外文撰寫或僅以所蒐集外文資料為內容以 <input type="checkbox"/> <input type="checkbox"/> 內容空洞簡略 <input type="checkbox"/> <input type="checkbox"/> 電子檔案未依格式辦理 <input type="checkbox"/> <input type="checkbox"/> 未於資訊網登錄提要資料及傳送出國報告電子檔 <input type="checkbox"/> 8. 本報告除上傳至出國報告資訊網外，將採行之公開發表： <input type="checkbox"/> 辦理本機關出國報告座談會（說明會），與同人進行知識分享。 <input type="checkbox"/> 於本機關業務會報提出報告 <input type="checkbox"/> 9. 其他處理意見及方式：	
層轉機關審核意見	<input type="checkbox"/> 1. 同意主辦機關審核意見 <input type="checkbox"/> 全部 <input type="checkbox"/> 部分 _____（填寫審核意見編號） <input type="checkbox"/> 2. 退回補正，原因： _____ <input type="checkbox"/> 3. 其他處理意見： _____	

說明：

- 一、 出國計畫主辦機關即層轉機關時，不需填寫「層轉機關審核意見」。
- 二、 各機關可依需要自行增列審核項目內容，出國報告審核完畢本表請自行保存。
- 三、 審核作業應於報告提出後二個月內完成。

報告人



單位
主管



主管處
主管



總經理
副總經理

:

徐懷璽 12/15

行政院及所屬各機關出國報告提要

出國報告名稱：龍門計畫國外製造機械設備製程中品質查驗

頁數 38 含附件：■是□否

出國計畫主辦機關/聯絡人/電話：台灣電力公司/陳德隆(人事處)/02-23667685

出國人員姓名/服務機關/單位/職稱/電話：邱雲長/台灣電力公司/核能安全處/
主管/02-23667187

出國類別：□1 考察□2 進修□3 研究□4 實習■5 其他（洽公）

出國期間：95/10/15~95/10/26 出國地區：韓國

報告日期：95/12/12

分類號/目：

關鍵詞：

內容摘要：本項出國計畫為依據龍門計畫 ASME Sec. III 核能級管路採購合約 (8749311M01800) 及管閥採購合約 (8749411M02100) 之規定，對核四工程核能管路製造廠商 Doosan 公司與其分包廠商 Sungkwang Bend 和 TK 公司，及管閥製造廠商 Seo-Heung Metal 等公司執行製程品質查驗；包括停留檢驗點及見證檢驗點之執行、製造程序之查證、材料之標示、包裝與儲存之查證、不符合事項之處理、裝運前之最終檢驗及相關品質紀錄之審查等。查驗結果，核能級管路部份均能符合採購規範品質要求，未發現有疏失事項。管閥部份則發現：(1) 有 45 個 Valve 其 Valve Body 上未標識 Flow Direction；(2) 有 67 個 Valve 其 Nameplate 上的 Valve Tag No. 將 Unit 2 誤植成 Unit 1；(3) 品質紀錄有一些文件疏失。本次查驗管閥部份所發現之疏失事項，廠商均已立即配合改正完成。

龍門計畫國外製造機械設備製程中品質查驗

摘 要

本項出國計畫為依據龍門計畫 ASME Sec. III 核能級管路採購合約 (8749311M01800) 及管閥採購合約 (8749411M02100) 之規定，對核四工程核能管路製造廠商 Doosan 公司與其分包廠商 Sungkwang Bend 和 TK 公司，及管閥製造廠商 Seo-Heung Metal 等公司執行製程品質查驗；包括停留檢驗點及見證檢驗點之執行、製造程序之查證、材料之標示、包裝與儲存之查證、不符合事項之處理、裝運前之最終檢驗及相關品質紀錄之審查等。查驗結果，核能級管路部份均能符合採購規範品質要求，未發現有疏失事項。管閥部份則發現：(1) 有 45 個 Valve 其 Valve Body 上未標識 Flow Direction；(2) 有 67 個 Valve 其 Nameplate 上的 Valve Tag No. 將 Unit 2 誤植成 Unit 1；(3) 品質紀錄有一些文件疏失。本次查驗管閥部份所發現之疏失事項，廠商均已立即配合改正完成。

龍門計畫國外製造機械設備製程中品質查驗

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壹、出國任務說明

本項出國計畫為依據龍門計畫 ASME Sec. III 核能級管路採購合約(8749311M01800) 及管閥採購合約(8749411M02100)之規定，對核四工程核能管路製造廠商 Doosan 公司與其分包廠商 Sungkwang Bend 和 TK 公司，及管閥製造廠商 Seo-Heung Metal 等公司執行製程品質查驗；包括停留檢驗點及見證檢驗點之執行、製造程序之查證、材料之標示、包裝與儲存之查證、不符合事項之處理、裝運前之最終檢驗及相關品質紀錄之審查等。

貳、出國行程

95.10.15 ~ 95.10.15	台北 ---- 仁川 ---- 首爾	往 程
95.10.16 ~ 95.10.17	首爾 Seo-Heung Metal 公司	執行品質查驗 (17日公畢往釜山)
95.10.18 ~ 95.10.19	釜山 Seo-Heung Metal 公司	執行品質查驗 (Busan Factory) (19日公畢往昌原)
95.10.20 ~ 95.10.21	昌原 Doosan 公司	執行品質查驗 (21日公畢往釜山)
95.10.22 ~ 95.10.25	釜山 Sungkwang、TK、 Daekwang 公司	執行品質查驗
95.10.26 ~ 95.10.26	釜山 ---- 仁川 ---- 台北	返 程

參、管閥製程中品質查驗工作報告(採購合約 8749411M02100)

一、查驗項目及數量

本次查驗項目及數量包括：

Unit 1 1. Bellows Sealed valve: 8 pcs

Unit 2 1. Bellows Sealed valve : 594 pcs
2. Chevron Seal Packing Valve : 67 pcs

二、查驗廠商及方式

本次查驗廠商及其主要作業項目包括：

1. Seo-Heung Metal 公司: Bellows Sealed valve

2. Seo-Heung Metal 公司(Busan Factory): Chevron Seal Packing Valve 查驗進行方式，主要包括：

1. 查驗相關文件及其修訂情況。
2. 查證管閥之製造、標識、儲存、清潔和 Shipping Preparation 狀況。
3. 審查管閥之品質文件及紀錄之正確、完整性。

三、查驗相關文件及其修訂情況

與 Seo-Heung Metal 公司之 Mr. T. K. Moon, Mr. G. G. Ann, Mr. Y. S. Ko 查對目前工作依據之相關文件，主要包括：

1. Contract 8749411M02100
2. Procurement Spec. No.874-MS-021,Rev.1
3. Seo-Heung Metal 公司 QA Manual (QAM-A, Rev.9)
4. Inspection and Test Plans:
Part A: 10801.MS021.14-20001, Rev.0
Part B: 10801.MS021.24-20001, Rev.0
5. Quality Record List(QRL-LMV01 Rev.0)
6. Inspection and Test Procedures:
Part A: 10801.MS021.14-20002 & 20003, Rev.0
Part B: 10801.MS021.24-20002 & 20003, Rev.0
7. Storage, Packing and Shipping Procedures:
Part A: 10801.MS021.14-20008, Rev.0
Part B: 10801.MS021.24-20008, Rev.0

四、至 95.10.19 之管閥製造進度如下：

1. Bellows Sealed Valve 部份：

	<u>Unit 1</u>	<u>Unit 2</u>	<u>總計</u>
Total Valves(pcs)：	594	594	1188
PQC Issued：	594(100%)	594(100%)	1188(100%)
Shipped：	586(99%)	0(0%)	586(49%)

2. Chevron Seal Packing Valve 部份：

	<u>Unit 1</u>	<u>Unit 2</u>	<u>總計</u>
Total Valves(pcs)：	67	67	134
PQC Issued：	67(100%)	67(100%)	134(100%)
Shipped：	67(100%)	0(0%)	67(50%)

五、製程中品質查驗工作概述

1. 本合約之管閥數量，包括 1/2 吋~4 吋之 Bellows Sealed Valve 共 1188

pcs 及 6 吋~30 吋之 Chevron Seal Packing Valve 共 134 pcs，均已製造完成，故目前工廠內無進行之管閥製作作業。

2. 對管閥 Cleaning, Coating, Marking, 及 Shipping Preparation 之查驗情形：

- (1) 本次查驗數量包括：Unit 1 Bellows Sealed valve 8 pcs 及 Spare Parts 64 sets (共裝入 1 只大木箱)；Unit 2 Bellows Sealed valve 594 pcs 及 Spare Parts 4752 sets (分裝入 11 只大木箱)；Unit 2 Chevron Seal Packing Valve 67 pcs 及 Spare Parts 536 sets (分裝入 48 只大木箱)。
- (2) Bellows Sealed Valve 部份，採抽查 10% 之方式；Chevron Seal Packing Valve 部份，採 100% 之方式，查對管閥之規格、材質及標識，包括：Nameplate, Valve Tag No., Trade Mark, Pressure Rating, Size, Material Designation, Identification No., Flow Direction 等，查驗結果發現：(A) Unit 2 Bellows Sealed Valve 中，有 4 pcs 之 800# SW A105/13CR 1/2 吋 Gate Valve 及 41 pcs 之 800# SW A105/13CR 2 吋 Gate Valve，其 Valve Body 上未標識 Flow Direction；(B) Unit 2 Chevron Seal Packing Valve，全部 67 pcs 之 Nameplate 上的 Valve Tag No. 均誤植成 Unit 1。
- (3) 對未標識 Flow Direction 之疏失，廠商以 Die Stamping 方式於各相關之 Valve Body 上補打流向。對 Valve Tag No. 誤植之疏失，廠商則重新製作 Nameplate 予以更換。上述改正措施均已於本次查驗期間完成，並經重新查證同意接受。
- (4) 檢查管閥內部之清潔情況良好，End 及 Opening 均按照規定用塑膠蓋或木板保護並用膠帶密封。所有的管閥均以防水塑膠布包裹，放入乾燥劑後以膠帶密封，小口徑管閥另先以紙箱包裝，最後均裝入鋪設防水塑膠布之大木箱中密封後貼上 ID Marking 及附上 Packing List，儲存於工廠內等候交運。Packing Inspection 部份未發現有不合情況。

六、審查管閥之品質紀錄文件

審查各管閥之 Quality Record Package(QRP)，包括：Certificate Material Test Report(CMTR), Certificate of Compliance(C of C), Fabrication, Inspection and Test Report, Heat Treatment Record, Wall Thickness Measuring Report, Pressure/Functional Test Report, Dimension Check Report, As-built Drawing, Notice of Unsatisfactory Condition(NUC), … 等，總計審查 3 份 Product

Quality Certificate(PQC)所包含之 669 件管閥及 5352 組 Spare Parts 之品質紀錄文件(詳附件 2)，審查結果發現有下列疏失，有問題之 QRP 均已於本次查驗工作期間完成改正。

1. Unit 1 Bellows Sealed Valve 部份：

PQC 之” Product Description” 將 Part A: Bellows Sealed Valve 誤植為 Chevron Seal Packing Valve。(PQC 已更正並抽換)

2. Unit 2 Bellows Sealed Valve 部份：

PQC 檢附之 594 張 As-built Drawing，均為 Unit 1 之圖面。(圖面已抽換成 Unit 2 之圖面)

3. Unit 2 Chevron Seal Packing Valve 部份：

C of C 記載之管閥總數為 66 pcs，與 PQC 之總數 67 pcs 不符。(經查對發現 C of C 中，將 8 吋 Class 150 Gate Valve 之數量 3 pcs 誤植為 2 pcs。C of C 已更正並抽換)

肆、核能級管件製程中品質查驗工作報告(採購合約 8749311M01800)

一、查驗項目及數量

本次查驗項目及數量包括：

Unit 2 Shop Fabricated Pipe(BOP)：7 pcs

Loose Parts (BOP)：24 pcs

二、查驗廠商及方式

本次查驗廠商及其主要作業項目包括：

1. Doosan 公司(合約廠商): Shop Fabricated Pipe, Loose Parts
2. TK 公司(分包廠商): 5D Bend Welded Pipe
3. Sungkwang Bend 公司(分包廠商): Small Bore Fitting, Loose Parts

查驗進行方式，主要包括：

1. 查驗相關文件及其修訂情況。
2. 查證核能級管件之製造、標識、儲存、清潔和 Shipping Preparation 狀況。
3. 審查核能級管件之品質文件及紀錄之正確、完整性。

三、查驗相關文件及其修訂情況

與 Doosan 公司之 Mr. Dea-Sik Jeon 查對目前工作依據之相關文件，
 主要包括：

1. TPC-Doosan Contract 8749311M01800
2. Procurement Spec. for Shop Fabricated Piping—ASME
 III ,Class 2,3(Spec. No.874-M0029,Rev.5, Amendment No.2)
3. Doosan 公司 QA Manual (QM-200, Rev.6)
4. Inspection and Test Plan (874-M0029, Rev.5)
5. Sub-contractors' Inspection and Test Plan (Rev.1)
6. QA Record List(Rev.0)
7. 相關規範、標準及程序書(詳附件 3)

四、至 95.10.25 之核能級管件製造進度如下：

3. BOP 部份：

(1) Shop Fabricated Pipe(包括 2.5D/5D Bend pipe)：

	<u>一號機</u>	<u>二號機</u>	<u>總計</u>
Total Spools(pcs)：	611	613	1224
PQC Issued：	611(100%)	613(100%)	1224(100%)
Shipped：	604(99%)	606(99%)	1210(99%)

(2)：6% moly Straight Welded Pipe：

	<u>一號機</u>	<u>二號機</u>	<u>總計</u>
Total Spools(pcs)：	690	591	1281
PQC Issued：	690(100%)	591(100%)	1281(100%)
Shipped：	690(100%)	591(100%)	1281(100%)

4. BONI 部份：

(1) Pipe：

	<u>一號機</u>	<u>二號機</u>	<u>總計</u>
Total Q' ty(m)：	20374	20374	40748
PQC Issued：	20374(100%)	20374(100%)	40748(100%)
Shipped：	20374(100%)	20374(100%)	40748(100%)

(1) Fitting：

	<u>一號機</u>	<u>二號機</u>	<u>總計</u>
Total Pieces：	5428	5428	10856
PQC Issued：	5428(100%)	5428(100%)	10856(100%)
Shipped：	5428(100%)	5428(100%)	10856(100%)

五、製程中品質查驗工作概述

1. Shop Fabricated Pipe 部分：

- (1) 合約原訂之管件數量均已製造完成，剩下因設計變更而追加之管件共 65 件，目前準備材料中，故工廠現場無進行中之管件製作作業。
- (2) 上述追加之管件，預定 12 月中可製造完成，如無再追加之管件時，本合約即全部完成。

2. 對管節、管件 Stamping, Cleaning, Coating, Marking, 及 Shipping Preparation 之查驗情形：

- (1) Shop Fabricated Pipe：Unit 1 及 Unit 2 共 14 支管節。100% 查對每支管節標識，包括：Code Nameplate, Spool No., NPT Stamp 等，查驗結果全部管節均按照規定標識。另依照 ITP 規定，隨機抽驗 1 支管節（不超過 5%），要求廠商拆除包裝做 Dimension、Inside Surface Condition、Packing Condition 之目視檢查。檢查結果無不符合情況發現，各管節均經清潔、乾燥後，管端蓋上 Cap 並以膠帶密封，整支管節以木框固定，貼上 ID Marking 及附上 Packing List，放置於露天儲存場，上面覆蓋防雨膠布等候交運。
- (2) Loose Parts：Unit 2 之 Orifice Flange 共 24 件。100% 檢查 Loose Parts 之規格、材質及標識，檢查結果未發現有不符合情況。Packing Condition 則以每 2 件 Flange 裝入鋪設防水塑膠布之紙箱中，並放入乾燥劑，以膠帶密封後貼上 ID Marking 及附上 Packing List，儲存於工場內等候交運，未發現有不符合情況。

六、審查核能級管件之品質紀錄文件

審查各核能級管節、管件之 QRP(Quality Record Package)，包括：Certificate of Conformance, Code Data Report, CMTR, NDE Reports, Dimension Inspection Report, Shop Traveler, As-built Drawing, NUC/NCR, ... 等，總計審查 Shipment No.81~82 共 2 份 Product Quality Certificate(PQC)所包含之 7 支管節、24 件 Loose Parts 之品質紀錄文件(詳附件 4)，審查結果無不符合狀況發現。

七、處理中鼎公司所提之 BONI 部份 2” 以下管件材質證明澄清事宜

1. 本次出國同時追蹤處理 Doosan 對中鼎公司所提之 BONI 部份 2” 以下管件材質證明澄清事項之辦理情形。
2. Doosan 已依據本處 10/2 之 G-DNS-06090429 函要求，提出澄清或進行相關改正行動(詳附件 5)。主要包括：
 - (1) 對不鏽鋼材質之 Fitting 是否要求分析 Nitrogen Content 之問題。Doosan 確認其所供應之 Fitting，均屬低碳(L)等級之不鏽鋼，

依據 ASME 材料規範，不需分析 Nitrogen Content。

- (2) 有關不鏽鋼 Sensitization 測試之 Etching 時間問題。Doosan 澄清測試報告中之 Etching 時間” 5S”，並非中鼎公司所認知的 5 Second，而是表示” 5 minutes, Sample Surface”。已要求 Doosan 於測試報告上加註說明。
 - (3) 將材質證明名稱” Certificate of Conformance” 變更爲” Certificate of Compliance” 問題，Doosan 已配合修訂。
 - (4) C of C 未標註採購規範之版次問題，Doosan 已配合修訂。
3. 上述修訂後的相關材質證明文件，經審查無誤後，另要求 Doosan 建立 Index，明確列出修訂文件之 Shipment No./Volume No./Page No.，以利龍門施工處抽換 QRP。Doosan 已配合建立如附件 6。

伍、出國期間所遭遇之困難與特殊事項

無。

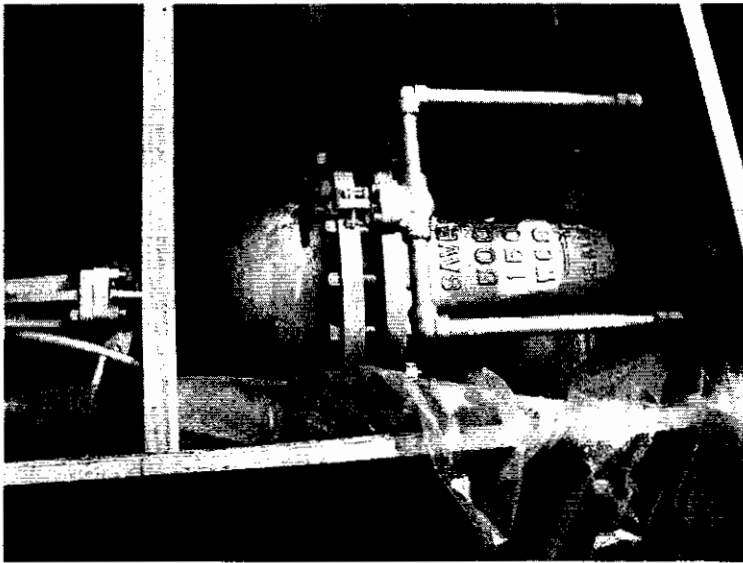
陸、心得與建議

- 一、 本次品質查驗後，8749411M02100 管閥採購合約之所有工廠製造及交運前檢驗作業均已完成。8749311M01800 核能級管件採購合約，則只剩下少數之管件，對剩下之最後 1 批管件，基於品質與檢驗費用的考量，已另案簽請免除交運前之檢驗，而改由廠商將 QRP 及 PQC 寄來台北審查及簽署。
- 二、 同一採購案之品質查驗工作有其延續性，前一趟查驗工作報告對執行後一趟查驗工作之人員，具有相當的參考價值，可藉以瞭解工作進度、製造狀況、有無需注意或追蹤的事項等。現行石威公司派員執行之品質查驗工作，提出查驗報告的期限規定爲工作完成後 30 天內，似乎過於寬鬆，常有後一趟查驗工作已開始，但前一趟查驗工作報告尚未提出的情形。建議查驗報告提出的期限應修訂爲工作完成後 10 天內較合理，同時應增訂對報告延遲提出的罰款規定。

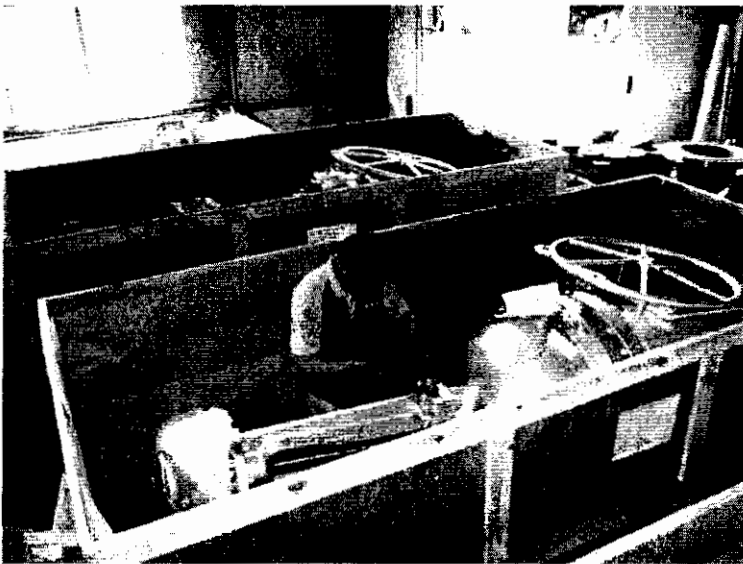
柒、附件

- 附件 1：品質查驗工作相關照片（共 2 頁）
- 附件 2：管閥 Product Quality Certificate(PQC)（共 16 頁）
- 附件 3：品質查驗工作相關規範、標準及程序書（共 1 頁）
- 附件 4：管件 Product Quality Certificate(PQC)（共 4 頁）
- 附件 5：The Corrective Action for QRP Clarification（共 3 頁）
- 附件 6：Index of Revised Report for QRP（共 2 頁）

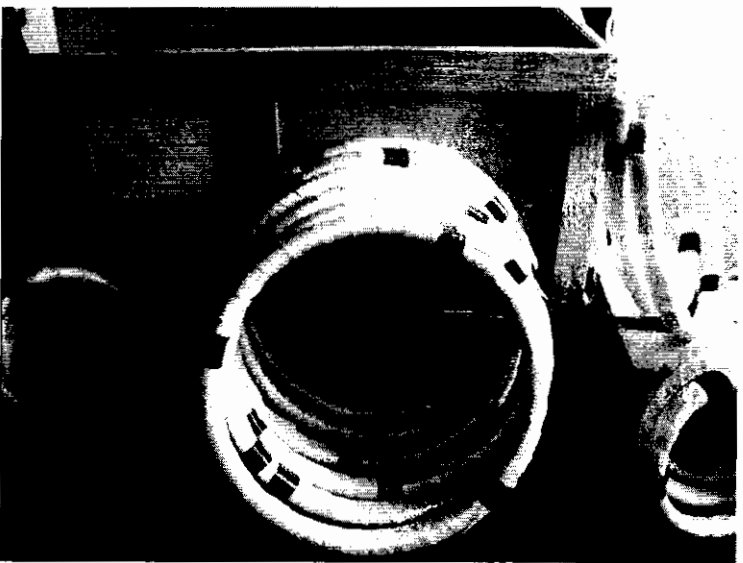
【附件一】



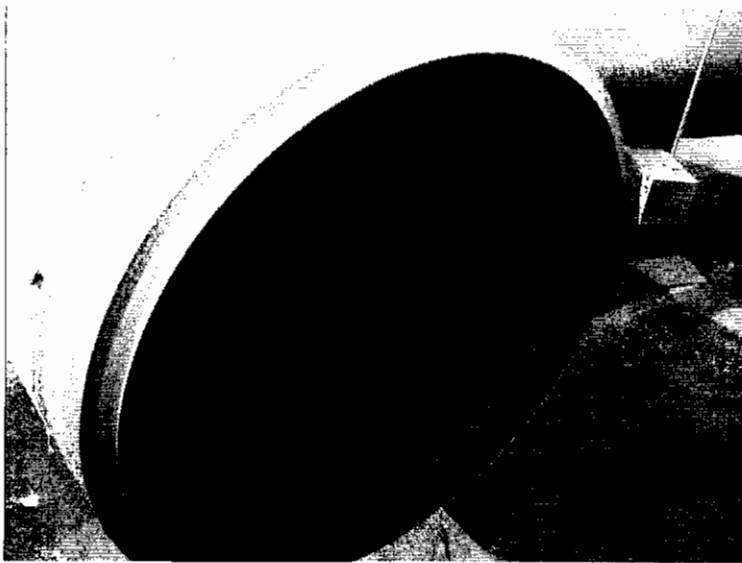
管閥之 Final
Inspection



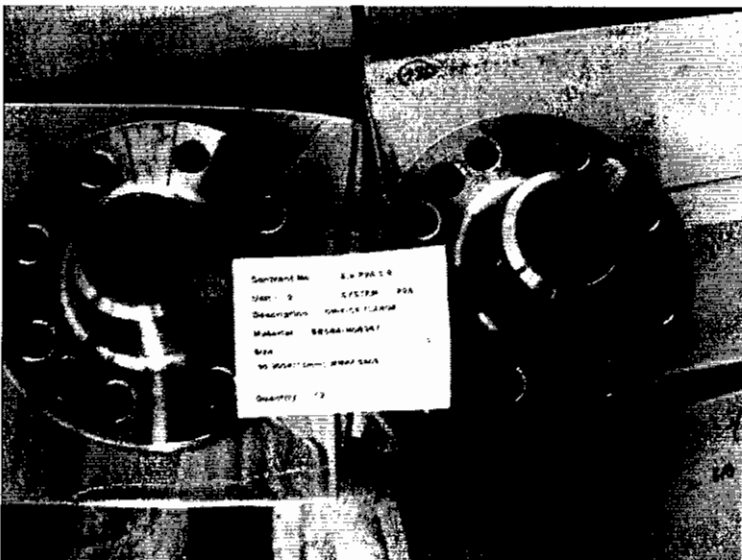
更換管閥之錯
誤 Nameplate



查對管閥之
Spare Parts
之規格及數

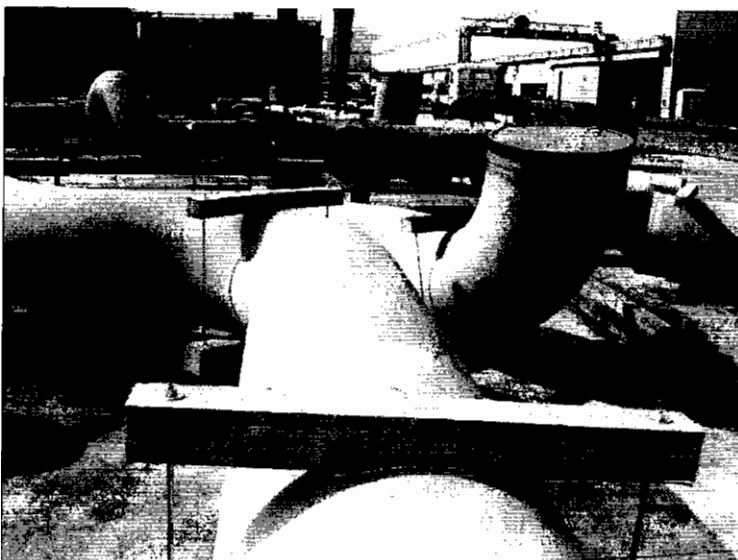


檢查管節之 Weld
End Preparation 及
內部清潔情況



Standard No. 8.0 PPA 1.0
Year 0 0/1700 00A
Description ORIFICE FLANGE
Material 304SS 0000000000
Size 10.00000000 00000000
Quantity 12

查對 Loose Parts
(Orifice Flange)
之規格及標識



檢查管節之包裝
情況



LUNGMEN PROJECT
RELEASE FOR SHIPMENT
Product Quality Certificate

CLIENT :Taiwan Power Company	TPC CONTRACT. NO. 8749411M02100	SHIPMENT. NO. 01
TPC SPECIFICATION NO. 874-MS-021	REV. 1	ADDENDA
PRODUCT DESCRIPTION Part A. Bellows Sealed Valves & Spare Parts – Unit.1		
<u>SUPPLIER'S CERTIFICATION</u>		
I HEREBY CERTIFY THAT THE PRODUCT(S) IDENTIFIED HEREIN HAVE BEEN MANUFACTURED UNDER A CONTROLLED PROGRAM AND ARE IN COMPLIANCE WITH THE APPLICABLE CODES, STANDARDS AND SPECIFICATIONS LISTED IN TPC PURCHASE SPECIFICATION REQUIREMENT.		
<u>ITEM NO.</u>	<u>QUANTITY</u>	<u>DESCRIPTION</u>
1	8 PCS	Bellows Sealed Valves
2	64 SETS Detail as packing list	Mandatory Spare Parts
ALL SUPPORTING DOCUMENTATION REQUIRED BY THE ABOVE REFERENCED DOCUMENTS HAVE BEEN ISSUED TO TPC		
AUTHORIZED REPRESENTATIVE.		
SIGNED <i>E. G. Ahn</i>	DATE 2006.10.16	
TITLE <i>QA Director</i>	SUPPLIER	SEO-HEUNG METAL CO.,LTD.
<u>TPC REPRESENTATIVE CERTIFICATION¹</u>		
THIS IS TO CERTIFY THAT EVIDENCE SUPPORTING THE ABOVE SUPPLIERS' CERTIFICATION STATEMENT HAS BEEN REVIEWED AND THAT NO DEVIATIONS FROM QUALITY ASSURANCE REQUIREMENTS HAVE BEEN FOUND UNLESS NOTED BELOW."		
AUTHORIZED DEVIATIONS AND NONCONFORMANCES HAVE BEEN NOTED BELOW.		
SIGNED <i>F. C. Chiu</i>	DATE Oct. 16, 2006	
TITLE TPC/S&W INSPECTOR	RFA NO. ---	
DEVIATIONS/NONCONFORMANCES FROM PURCHASE ORDER REQUIREMENTS		

QUALITY RECORDS LIST

PART A – BELLOWS SEALED VALVE / UNIT1

Label 1	1. Product Quality Certificate(PQC) -----	1 – 2Pages
Label 2	2. Certificate Material Test Report -----	1 – 6Pages
	3. Fabrication, Inspection and Test Report	
Label 3	a) Certificate of Compliance (C of C)-----	1 -- 1Pages
Label 4	b) Wall Thickness Measuring Report-----	1 – 1Pages
Label 5	c) Pressure/Functional Test Report (PTR)-----	1 – 1Pages
	- Hydrostatic Test Report (Shell, Stem Seal)	
	- Seat & Back Seat Leakage Test Report	
	- Functional (Operation) Test Report	
Label 6	e) Dimension Check Report (Inspection Report) -----	1 – 1Pages
	4. Document Control Records	
Label 7	a) Drawing List-----	1 – 1Pages
Label 8	b) Drawing-----	1 – 4Pages
Label 9	c) Procedures	
	- Submittal List of QA-----	1 – 1Pages
	- Inspection and Test Procedure (for Globe Valve)-----	1 – 18Pages
	- Wall Thickness Measurement Procedure (for Globe Valve)-1 -	8Pages
	- Cleaning Procedure (for Carbon & Low Alloy Steel)-----	1 - 6Pages
	- Storage, Packing and Shipping Procedure-----	1 - 10Pages
Label 10	d) Welding Procedure Specification & Procedure Qualification Record--	1 - 15Pages



PACKING LIST




LIST NO. : KE061010-02

DATE : OCT. 10, 2006

PROJECT NAME : LUNG MEN PROJECT FOURTH NUCLEAR POWER PLANT UNIT #1, PART A - BELLOWS SEALED VALVE 2 ND SHIPMENT	CONTRACT NO. : 8749411M02100	EQUIPMENT DESCRIPTION : BELLOWS SEALED VALVE
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CUSTOMER : TAIWAN POWER COMPANY	SUPPLIER : SEO HEUNG METAL CO., LTD.	CLASS :
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PACKAGE UNIT NO	VALVE VDN NO.	TAG NO	DESCRIPTION OF EQUIPMENT	QTY	NET WEIGHT (KG)	GROSS WEIGHT (KG)	WOODEN BOX MEASUREMENT (M ³)	REFERENCE DRAWING NO
#02	VSS080-4-BAIAF-H	1N23-BV-5727A,5727B,5780A,5780B, 5781A,5781B,5788A,5788B	BELLOWS GATE/V 800# SW A105/13CR ¾"(20)	8	19	50.00	0.221	10801 MS021 15-12011
	VSS080-4-BAIAF-H		PACKING & GASKET ¾"(20)	64	1			MANDATORY SPARE PARTS
TOTAL					72	20	50.00	0.221

PREPARED BY : 	REVIEWED BY : 	APPROVED BY : 
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LUNGMEN PROJECT
RELEASE FOR SHIPMENT

Product Quality Certificate

CLIENT :Taiwan Power Company	TPC CONTRACT. NO. 8749411M02100	SHIPMENT NO. 01
TPC SPECIFICATION NO. 874-MS-021	REV. 1	ADDENDA
PRODUCT DESCRIPTION Part A. Bellows Sealed Valves & Spare Parts -- Unit.2		
SUPPLIER'S CERTIFICATION		
I HEREBY CERTIFY THAT THE PRODUCT(S) IDENTIFIED HEREIN HAVE BEEN MANUFACTURED UNDER A CONTROLLED PROGRAM AND ARE IN COMPLIANCE WITH THE APPLICABLE CODES, STANDARDS AND SPECIFICATIONS LISTED IN TPC PURCHASE SPECIFICATION REQUIREMENT.		
<u>ITEM NO.</u>	<u>QUANTITY</u>	<u>DESCRIPTION</u>
1	594 PCS	Bellows Sealed Valves
2	4,752 SETS Detail as packing list	Mandatory Spare Parts
ALL SUPPORTING DOCUMENTATION REQUIRED BY THE ABOVE REFERENCED DOCUMENTS HAVE BEEN ISSUED TO TPC		
AUTHORIZED REPRESENTATIVE.		
SIGNED <i>G. G. AHN</i>		DATE <i>2006.10.16</i>
TITLE <i>QA Director</i>		SUPPLIER SEO-HEUNG METAL CO.,LTD.
TPC REPRESENTATIVE CERTIFICATION¹		
THIS IS TO CERTIFY THAT EVIDENCE SUPPORTING THE ABOVE SUPPLIERS' CERTIFICATION STATEMENT HAS BEEN REVIEWED AND THAT NO DEVIATIONS FROM QUALITY ASSURANCE REQUIREMENTS HAVE BEEN FOUND UNLESS NOTED BELOW."		
AUTHORIZED DEVIATIONS AND NONCONFORMANCES HAVE BEEN NOTED BELOW.		
SIGNED <i>F. C. Chion</i>		DATE <i>Oct, 16, 2006</i>
TITLE TPC/S&W INSPECTOR		RFA NO. ---
DEVIATIONS/NONCONFORMANCES FROM PURCHASE ORDER REQUIREMENTS		

1 - The performance of inspections by S&W/TPC shall in no way impair TPC's right to reject nonconforming work or release or discharge the Supplier from any of its obligations under the contract.

QUALITY RECORDS LIST

PART A – BELLOWS SEALED VALVE / UNIT2

Label 1	1. Product Quality Certificate(PQC) -----	1 – 7Pages
Label 2	2. Certificate Material Test Report -----	1 – 59Pages
	3. Fabrication, Inspection and Test Report	
Label 3	a) Certificate of Compliance (C of C)-----	1 – 1Pages
Label 4	b) Heat Treatment Records-----	1 – 7Pages
Label 5	c) Wall Thickness Measuring Report-----	1 – 26Pages
Label 6	d) Pressure/Functional Test Report (PTR)-----	1 – 59Pages
	- Hydrostatic Test Report (Shell, Stem Seal0	
	- Seat & Back Seat Leakage Test Report	
	- Functional (Operation) Test Report	
Label 7	e) Dimension Check Report (Inspection Report) -----	1 – 51Pages
	4. Document Control Records	
Label 8	a) Drawing List-----	1 – 5Pages
Label 9	b) Drawing-----	1 – 57Pages
Label 10	c) Procedures	
	- Submittal List of QA-----	1 – 1Pages
	- Inspection and Test Procedure (for Gate Valve)-----	1 – 17Pages
	- Inspection and Test Procedure (for Globe Valve)-----	1 – 18Pages
	- Wall Thickness Measurement Procedure (for Gate Valve)--	1 - 7Pages
	- Wall Thickness Measurement Procedure (for Globe Valve)-1	- 8Pages
	- Cleaning Procedure (for Carbon & Low Alloy Steel)-----	1 - 6Pages
	- Cleaning Procedure (for Stainless Steel)-----	1 - 6Pages
	- Storage, Packing and Shipping Procedure-----	1 - 10Pages
Label 11	d) Welding Procedure Specification & Procedure Qualification Record--	1 - 75Pages




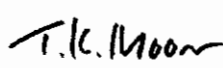


PACKING LIST

LIST NO. : KE061010-03

DATE : OCT. 10, 2006

PROJECT NAME : LUNG MEN PROJECT FOURTH NUCLEAR POWER PLANT	CONTRACT NO. : 8749411M02100	EQUIPMENT DESCRIPTION : BELLOWS SEALED VALVE
UNIT #2, PART A - BELLOWS SEALED VALVE 2 ND SHIPMENT		
CUSTOMER : TAIWAN POWER COMPANY	SUPPLIER : SEO HEUNG METAL CO., LTD.	CLASS :

PACKAGE UNIT NO.	VALVE VDN NO.	TAG NO.	DESCRIPTION OF EQUIPMENT	Q'TY	NET WEIGHT (KG)	GROSS WEIGHT (KG)	WOODEN BOX MEASUREMENT (M ³)	REFERENCE DRAWING NO.					
#03	VUS080-4-BAWBF-H	2N61-BV-5819	BELLOWS GATE/V 800# SW A105/13CR ¾"(20)	1	3	430.00	0.998	10801 MS021.15-22004					
	VSS060-4-GEIAF-H	2N33-BV-5513,5526,5520,5579,5605,5611,5612,5614,5620,5621,5622	BELLOWS GLOBE/V 600# SW F22/13CR ¾"(20)	58	139			10801 MS021.15-22008					
		2P62-BV-5113,5115,5556,5558,5560,5566,5570,5580,5582,5584,5586,5587,5588,5592,5595,5598,5601,5657,5661,5662,5663,5664,5665,5675,5676,5677,5678,5679,5680,5681,5682,5683,5684,5686,5687,5688,5689,5690,5691,5692,5693,5694,5695,5696,5697,5698,5699,											
		VSS060-4-GEIAF-H							2N33-BV-5530	BELLOWS GLOBE/V 600# SW F22/13CR 2"(50)	1	13	10801 MS021.15-22009
		VSS080-4-BAIAF-H							2N33-BV-5615,5616,5618,5619,2P62-BV-5085,5092,5110,5111,5116,5117,5118,5524,5526,5528,5530,5531,5533,5534,5536,5537,5539,5540,5542,5543,5545,5561,5562,5563,5564,5579,5581,5583,5585,5590,5593,5596,5599,5652,5653,5654,5658,5659,5660,5666	BELLOWS GATE/V 800# SW A105/13CR ¾"(20)	55	127	10801 MS021.15-22011
2N33-BV-5587,5509,5519													
2N23-BV-5727A,5727B,5780A,5780B,5781A,5781B,5788A,5788B													
VSS150-4-BEIEF-H	2N33-BV-5606	PSB GLOBE/V 1500# SW A105/13CR ¾"(20)	5	85	10801 MS021.15-22028								
#04	VUS080-4-GEWBF-H	2P13-BV-5501,5502	BELLOWS GATE/V 800# SW F22/13CR ¾"	2	6	830.00	1.428	10801 MS021.15-22001					
	VUS080-4-GEWBF-H	2N14-BV-5726A,5726B,5740A,5740B	BELLOWS GATE/V 800# SW F22/13CR 1½"	4	44			10801 MS021.15-22002					
	VUS080-4-GEWBF-H	2B21-BV-5518A,5518B,5518C,2N11-BV-5008A,5008B,5015,5018A,5018B,2N12-BV-5032A,5032B,5032C,5033A,5033B,5033C,5041A,5041B,5041C,5052A,5052B,5052C,2N14-BV-5041A,5041B,5042A,5042B,5043A,5043B,5044A,5044B,5055A,5055B,5056,5205A,5205B,5205C,5206A,5206B,5206C,2N21-BV-5533A,5533B,5533C,5533D	BELLOWS GATE/V 800# SW F22/13CR 2"	41	697			10801 MS021.15-22003					
		10801 MS021.15-22003											
		10801 MS021.15-22003											
SUBTOTAL				167	1,114	1,260.00	2.426						

PREPARED BY : 	REVIEWED BY : 	APPROVED BY : 	
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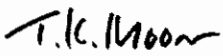
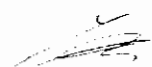
PACKING LIST

LIST NO. : KE061010-03

DATE : OCT. 10, 2006

PROJECT NAME : LUNG MEN PROJECT FOURTH NUCLEAR POWER PLANT	CONTRACT NO. : 8749411M02100	EQUIPMENT DESCRIPTION : BELLOWS SEALED VALVE
UNIT #2, PART A - BELLOWS SEALED VALVE 2 ND SHIPMENT		
CUSTOMER : TAIWAN POWER COMPANY	SUPPLIER : SEO HEUNG METAL CO., LTD.	CLASS :

PACKAGE UNIT NO.	VALVE VDN NO.	TAG NO.	DESCRIPTION OF EQUIPMENT	QTY	NET WEIGHT (KG)	GROSS WEIGHT (KG)	WOODEN BOX MEASUREMENT (M ³)	REFERENCE DRAWING NO.	
#05	VUS080-4-BAWBF-H	2G61-BV-5517, 2N23-BV-5534A,5534B,5534C,5535A, 5535B,5535C,5537A,5537B,5537C, 5538A,5538B,5538C,5539A,5539B, 5539C,5541A,5541B,5541C, 2N61-BV-5507A,5507B,5805,5806, 2P13-BV-5723,5724	BELLOWS GATE/V 800# SW A105/13CR 1/2"	25	75			10801 MS021.15-22004	
	VUS080-4-BAWBF-H	2N21-BV-5505A,5505B,5505C,5505D, 5507A,5507B,5507C,5507D,5508A, 5508B,5508C,5508D 2N23-BV-5030A,5030B,5034A,5034B 5035A,5035B,5064A,5064B,5096A 5096B,5096C,5126A,5126B,5126C 5156A,5156B,5156C,5183A,5183B 5183C,5756A,5756B,5756C,5757A, 5757B,5757C,5766A,5766B,5766C, 5767A,5767B,5767C, 2N33-BV-5517	BELLOWS GATE/V 800# SW A105/13CR 2"	45	765	920.00	1.428	10801 MS021.15-22005	
#06	VUS150-4-GEWBF-H	2N14-BV-5723A,5723B,5723C,5723D	BELLOWS GATE/V 1500# SW F22/13CR 1/2"	4	124			10801 MS021.15-22006	
	VUS150-4-HEIKO-H	2N14-BV-5727A,5727B,5727C,5727D, 5741A,5741B,5741C,5741D	BELLOWS GATE/V 1500# SW WC9/13CR 1/2"	8	344	510.00	1.085	10801 MS021.15-22007	
#07	VSS060-4-GEIAF-H	2B21-BV-5013A,5013B,5013C,5014A, 5014B,5014C,5015A,5015B,5015C,5016A, 5016B,5016C	BELLOWS GLOBE/V 600# SW F22/13CR 1/2"	12	28			10801 MS021.15-22008	
	VSS060-4-GEIAF-H	2B21-BV-5517A,5517B,5517C	BELLOWS GLOBE/V 600# SW F22/13CR 2"	3	38			10801 MS021.15-22009	
	VSS080-4-BAIAF-H	2N33-BV-5534,5537,5540,5543,5546, 5549,5552,5555,5558,5561	BELLOWS GLOBE/V 800# SW A105/13CR 1/2"	10	22			10801 MS021.15-22010	
	VSS080-4-BAIAF-H	2N21-BV-5058A,5058B,5058C,5058D, 5008A,5008B,5008C,5008D,5011A, 5011B,5011C,5011D,5012A,5012B, 5012C,5012D,5501A,5501B,5501C, 5501D,5502A,5502B,5502C,5502D 2N33-BV-5535,5538,5541,5544,5547, 5550,5553,5556,5559,5562	BELLOWS GLOBE/V 800# SW A105/13CR 1 1/2"	34	286			10801 MS021.15-22013 10801 MS021.15-22013	
SUBTOTAL					141	1,682	1,430.00	2.513	

PREPARED BY : 	REVIEWED BY : 	APPROVED BY : 
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PACKING LIST

LIST NO. : KE061010-03

DATE : OCT. 10, 2006

PROJECT NAME : LUNG MEN PROJECT FOURTH NUCLEAR POWER PLANT	CONTRACT NO. : 8749411M02100	EQUIPMENT DESCRIPTION : BELLOWS SEALED
UNIT #2, PART A - BELLOWS SEALED VALVE 2 ND SHIPMENT		VALVE
CUSTOMER : TAIWAN POWER COMPANY	SUPPLIER : SEO HEUNG METAL CO., LTD.	CLASS :

PACKAGE UNIT NO.	VALVE VDN NO	TAG NO.	DESCRIPTION OF EQUIPMENT	QTY	NET WEIGHT (KG)	GROSS WEIGHT (KG)	WOODEN BOX MEASUREMENT (M ³)	REFERENCE DRAWING NO.
#07	VSS080-4-BAIAF-H	2G61-BV-5518, 2K68-BV-5621, 2N21-BV-5509A,5509B,5509C,5509D, 5701A,5701B,5701C,5701D,5702A, 5702B,5702C,5702D,5782A,5782B, 5782C,5782D, 2N22-BV-5204, 2N23-BV-5199A,5199B,5199C,5536A, 5536B,5536C,5540A,5540B,5540C, 5542A,5542B,5542C,5545A,5545B, 5545C,5740A,5740B,5740C,5741A, 5741B,5741C,5752A,5752B,5752C, 5753A,5753B,5753C,5758A,5758B, 5758C,5759A,5759B,5759C,5760A, 5760B,5760C,5761A,5761B,5761C, 5762A,5762B,5762C,5763A,5763B, 5763C,5764A,5764B,5764C,5765A, 5765B,5765C,5768A,5768B,5768C, 5769A,5769B,5769C,5770A,5770B, 5770C,5771A,5771B,5771C,5772A, 5772B,5772C,5773A,5773B,5773C, 5774A,5774B,5774C,5775A,5775B, 5775C,5776A,5776B,5776C,5777A, 5777B,5777C, 2N33-BV-5511,5524 2N61-BV-5027A,5027B,5520,5521A, 5521B,5522A,5522B,5724A,5724B, 5725,5726, 2P13-BV-5708,5709,5712,5713	BELLOWS GLOBE/V 800# SW A105/13CR 3/4"	117	269		10801 MS021.15-22011	
	VSS080-4-BAIAF-H	2N23-BV-5778B,5779A,5791A,5791B, 5791C,5792A,5792B,5792C,5793A, 5793B,5793C,5794A,5794B,5794C, 5024A,5024B,5058A,5058B,5554A, 5554B,5554C,5778A,5779B, 2N33-BV-5531	BELLOWS GLOBE/V 800# SW A105/13CR 2"	24	300		10801 MS021.15-22014	
SUBTOTAL				141	569			

PREPARED BY : 	REVIEWED BY : 	APPROVED BY : 
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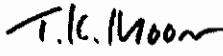

PACKING LIST

LIST NO. : KE061010-03

DATE : OCT. 10, 2006

PROJECT NAME : LUNG MEN PROJECT FOURTH NUCLEAR POWER PLANT	CONTRACT NO. : 8749411M02100	EQUIPMENT DESCRIPTION : BELLOWS SEALED VALVE
UNIT #2, PART A - BELLOWS SEALED VALVE 2 ND SHIPMENT		
CUSTOMER : TAIWAN POWER COMPANY	SUPPLIER : SEO HEUNG METAL CO., LTD.	CLASS :

PACKAGE UNIT NO	VALVE VDN NO.	TAG NO	DESCRIPTION OF EQUIPMENT	QTY	NET WEIGHT (KG)	GROSS WEIGHT (KG)	WOODEN BOX MEASUREMENT (M ³)	REFERENCE DRAWING NO.
#07	VSS080-4-BAIAF-H	2N23-BV-5097A,5097B,5097C,5127A,5127B,5127C,5157A,5157B,5157C,5184A,5184B,5184C,	BELLOWS GLOBE/V 800# SW A105/13CR 1"	12	49	1,230.00	1.533	10801.MS021.15-22012
	VSS080-4-GEIAF-H	2N12-BV-5057A,5057B,5057C,5058A,5058B,5058C,5059A,5059B,5059C,5060A,5060B,5060C,5061A,5061B,5061C,5062A,5062B,5062C,5504,5505 2N11-BV-5020,5021,5022 2N12-BV-5013,5014,5506A,5506B,5506C,5507A,5507B,5507C,5702A,5702B,5702C,5703A,5703B,5703C,5704A,5704B,5704C,5705A,5705B,5705C,5706A,5706B,5706C,5707A,5707B,5707C, 2N14-BV-5008,5009,5010,5028,5211A,5211B,5211C	BELLOWS GLOBE/V 800# SW F22/13CR 1/2"	56	129			10801.MS021.15-22015
	VSS080-4-GEIAF-H	2N14-BV-5168A,5168B	BELLOWS GLOBE/V 800# SW F22/13CR 1/2"	2	17			10801.MS021.15-22016
#08	VSS080-4-GEIAF-H	2B21-BV-5516A,5516B,5516C,	BELLOWS GLOBE/V 800# SW F22/13CR 2"	3	38	600.00	1.771	10801.MS021.15-22017
	VSS150-4-GEIAF-H	2N14-BV-5030	BELLOWS GLOBE/V 1500# SW F22/13CR 3/4"	1	9			10801.MS021.15-22019
	VSS150-4-GEIEF-H	2N14-BV-5029 2N22-BV-5096,5511,5512,5513,5514,5527,5528,5705A,5705B,5705C,5706A,5706B,5706C,5711,5712,5741,5743,5744,5745,5746,5753A,5753B,5753C,5754A,5754B,5754C,5755,5756	BELLOWS GLOBE/V 1500# SW F22/13CR 3/4"	29	490			10801.MS021.15-22020
#09	VSS150-4-GEIEF-H	2N23-BV-5031A,5031B,5065A,5065B	BELLOWS GLOBE/V 1500# SW F22/13CR 1"	4	84	570.00	0.729	10801.MS021.15-22021
	VSS150-4-GEIEF-H	2N22-BV-5505A,5505B,5505C,5506A,5506B,5506C	BELLOWS GLOBE/V 1500# SW F22/13CR 2"	6	244			10801.MS021.15-22022
	VSS150-4-GEIEF-H	2N15-BV-5006A 2B21-BV-5005,5019A,5019B,5019C	BELLOWS GLOBE/V 1500# SW F316L/13CR 2"	5	204			10801.MS021.15-22023
#10	VSW015-4-C14AF-H	2N23-BV-5090A,5090B,5090C, 2N33-BV-5575,5577, 2N21-BV-5009A,5009B,5009C,5009D	BELLOWS GLOBE/V 150# BW WCB/13CR 3"	9	411			10801.MS021.15-22024
SUBTOTAL				127	1,675	2,400.00	4.033	

PREPARED BY : 	REVIEWED BY : 	APPROVED BY : 
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PACKING LIST

LIST NO. : KE061010-03

DATE : OCT. 10, 2006




PROJECT NAME : LUNG MEN PROJECT FOURTH NUCLEAR POWER PLANT	CONTRACT NO. : 8749411M02100	EQUIPMENT DESCRIPTION : BELLOWS SEALED VALVE
UNIT #2, PART A - BELLOWS SEALED VALVE 2 ND SHIPMENT		VALVE
CUSTOMER : TAIWAN POWER COMPANY	SUPPLIER : SEO HEUNG METAL CO., LTD.	CLASS :

PACKAGE UNIT NO	VALVE VDN NO.	TAG NO.	DESCRIPTION OF EQUIPMENT	Q'TY	NET WEIGHT (KG)	GROSS WEIGHT (KG)	WOODEN BOX MEASUREMENT (M ³)	REFERENCE DRAWING NO.
#10	VSW015-4-CI4AF-H	2N23-BV-5120A,5120B,5120C,5150A,5150B,5150C,5555A,5555B,5555C	BELLOWS GLOBE/V 150# BW WCB/13CR 4"	9	645	1,130.00	2.004	10801.MS021.15-22025
#11	VSW150-4-LEIEO-G	2B21-BV-5003A,5003B,5003C,5003D	BELLOWS GLOBE/V 1500# BW CF3M/13CR 3"	4	656	730.00	1.860	10801.MS021.15-22027
#12	VSW150-4-LEIEO-G	2B21-BV-5004,5006A,5006B,5006C,5006D	BELLOWS GLOBE/V 1500# BW CF3M/13CR 3"	5	820	900.00	2.283	10801.MS021.15-22027
#13	VUS080-4-GEWBF-H		PACKING & GASKET ¾"	16				MANDATORY SPARE PARTS
	VUS080-4-GEWBF-H		PACKING & GASKET 1½"	32				
	VUS080-4-GEWBF-H		PACKING & GASKET 2"	328				
	VUS080-4-BAWBF-H		PACKING & GASKET ¾"	200				
	VUS080-4-BAWBF-H		PACKING & GASKET 2"	360				
	VUS150-4-GEWBF-H		PACKING & GASKET 1½"	32				
	VUS150-4-HEIKO-H		PACKING & GASKET 1½"	64				
	VSS060-4-GEIAF-H		PACKING & GASKET ¾"	96				
	VSS060-4-GEIAF-H		PACKING & GASKET 2"	24				
	VSS080-4-BAIAF-H		PACKING & GASKET ½"	80				
	VSS080-4-BAIAF-H		PACKING & GASKET ¾"	936				
	VSS080-BAIAF-H		PACKING & GASKET 1"	96				
	VSS080-BAIAF-H		PACKING & GASKET 1½"	272				
	VSS080-BAIAF-H		PACKING & GASKET 2"	192				
	VSS080-4-GEIAF-H		PACKING & GASKET ¾"	448				
	VSS080-4-GEIAF-H		PACKING & GASKET 1½"	16				
	VSS080-4-GEIAF-H		PACKING & GASKET 2"	24				
	VSS150-4-GEIAF-H		PACKING & GASKET ¾"	8				
	VSS150-4-GEIEF-H		PACKING & GASKET ¾"	232				
	VSS150-4-GEIEF-H		PACKING & GASKET 1"	32				
	VSS150-4-GEIEF-H		PACKING & GASKET 2"	48				
	VSS150-4-GEIEF-H		PACKING & GASKET 2"	40				
	VSW015-4-CI4AF-H		PACKING & GASKET 3"	72				
	VSW015-4-CI4AF-H		PACKING & GASKET 4"	72				
VSW150-4-LEIEO-G		PACKING & GASKET 3"	72					
VUS080-4-BAWBF-H		PACKING & GASKET ¾"(20)	8					
VSS060-4-GEIAF-H		PACKING & GASKET ¾"(20)	464					
VSS060-4-GEIAF-H		PACKING & GASKET 2"(50)	8					
VSS080-4-BAIAF-H		PACKING & GASKET ¾"(20)	440					

SUBTOTAL

4,730 2,121 2,760.00 6.147

PREPARED BY : 	REVIEWED BY : 	APPROVED BY : 	
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PACKING LIST						LIST NO. : KE061010-03		
						DATE : OCT. 10, 2006		
PROJECT NAME : LUNG MEN PROJECT FOURTH NUCLEAR POWER PLANT UNIT #2, PART A - BELLOWS SEALED VALVE 2 ND SHIPMENT			CONTRACT NO. : 8749411M02100		EQUIPMENT DESCRIPTION : BELLOWS SEALED VALVE			
CUSTOMER : TAIWAN POWER COMPANY			SUPPLIER : SEO HEUNG METAL CO., LTD.		CLASS :			
PACKAGE UNIT NO.	VALVE VDN NO.	TAG NO.	DESCRIPTION OF EQUIPMENT	QTY	NET WEIGHT (KG)	GROSS WEIGHT (KG)	WOODEN BOX MEASUREMENT (M ³)	REFERENCE DRAWING NO.
#13	VSS150-4-BEIEF-H		PACKING & GASKET ½*(20)	40	83	125.00	0.550	MANDATORY SPARE PARTS
			TOUCH-UP PAINT QT-606 4L					
SUBTOTAL				40	83	125.00	0.550	
GRANDTOTAL				5,346	7,244	7,975.00	15.669	
PREPARED BY : 			REVIEWED BY : 		APPROVED BY : 			



***SHIPPING MARK**

CARGO DESCRIPTION: BELLOWS SEALED VALVES

CONTRACT NUMBER: 8749411M02100

PORT OF DESTINATION: KEELUNG, TAIWAN

CONSIGNEE: TAIWAN POWER COMPANY,

DEPARTMENT OF NUCLEAR AND FOSSIL POWER PROJECTS.

SERIAL NUMBER OF PACKAGES: 03-13

GROSS WEIGHT AND NET WEIGHT: KGS / KGS

CAUTION: "NOT UPSIDE DOWN"

DIMENSIONS: X X CM

CONSIGNOR: SEOHEUNG METAL CO., LTD.

1080-1 SHINGIL-DONG ANSAN-SI KYUNGGI-DO SOUTH KOREA.



LUNG MEN PROJECT
RELEASE FOR SHIPMENT
Product Quality Certificate

CLIENT :Taiwan Power Company	TPC CONTRACT. NO. 8749411M02100	SHIPMENT. NO. 01
TPC SPECIFICATION NO. 874MS-021	REV. 1	ADDENDA
PRODUCT DESCRIPTION Part B. Chevron Seal Packing Valves – Unit.2		
<u>SUPPLIER'S CERTIFICATION</u>		
I HEREBY CERTIFY THAT THE PRODUCT(S) IDENTIFIED HEREIN HAVE BEEN MANUFACTURED UNDER A CONTROLLED PROGRAM AND ARE IN COMPLIANCE WITH THE APPLICABLE CODES, STANDARDS AND SPECIFICATIONS LISTED IN TPC PURCHASE SPECIFICATION REQUIREMENT.		
<u>ITEM NO.</u>	<u>QUANTITY</u>	<u>DESCRIPTION</u>
1	67 PCS	Chevron Seal Packing Valves
2	536 SETS Detail as packing list	Mandatory Spare Parts
ALL SUPPORTING DOCUMENTATION REQUIRED BY THE ABOVE REFERENCED DOCUMENTS HAVE BEEN ISSUED TO TPC		
AUTHORIZED REPRESENTATIVE.		
SIGNED	<i>G. G. AHN</i>	DATE <i>2006. 10. 16</i>
TITLE	<i>QA Director</i>	SUPPLIER SEO-HEUNG METAL CO.,LTD.
<u>TPC REPRESENTATIVE CERTIFICATION¹</u>		
THIS IS TO CERTIFY THAT EVIDENCE SUPPORTING THE ABOVE SUPPLIERS' CERTIFICATION STATEMENT HAS BEEN REVIEWED AND THAT NO DEVIATIONS FROM QUALITY ASSURANCE REQUIREMENTS HAVE BEEN FOUND UNLESS NOTED BELOW."		
AUTHORIZED DEVIATIONS AND NONCONFORMANCES HAVE BEEN NOTED BELOW.		
SIGNED	<i>F. C. Chiu</i>	DATE <i>Oct. 16, 2006</i>
TITLE	TPC/S&W INSPECTOR	RFA NO. ---
DEVIATIONS/NONCONFORMANCES FROM PURCHASE ORDER REQUIREMENTS		

1 - The performance of inspections by S&W/TPC shall in no way impair TPC's right to reject nonconforming work or release or discharge the Supplier from any of its obligations under the contract.

QUALITY RECORDS LIST

PART B – CHEVRON SEAL PACKING VALVE / UNIT2

Label 1	1. Product Quality Certificate(PQC) -----	1 – 4Pages
Label 2	2. Certificate Material Test Report -----	1 – 57Pages
	3. Fabrication, Inspection and Test Report	
Label 3	a) Certificate of Compliance (C of C)-----	1 – 1Pages
Label 4	b) Heat Treatment Records-----	1 – 8Pages
Label 5	c) Wall Thickness Measuring Report-----	1 – 18Pages
Label 6	d) Pressure/Functional Test Report (PTR)-----	1 – 7Pages
	- Hydrostatic Test Report (Shell, Stem Seal)	
	- Seat & Back Seat Leakage Test Report	
	- Functional (Operation) Test Report	
Label 7	e) Dimension Check Report (Inspection Report) -----	1 – 19Pages
	4. Document Control Records	
Label 8	a) Drawing List-----	1 – 2Pages
Label 9	b) Drawing-----	1 – 54Pages
Label 10	c) Procedures	
	- Submittal List of QA-----	1 – 1Pages
	- Inspection and Test Procedure (for Gate Valve)-----	1 – 17Pages
	- Inspection and Test Procedure (for Globe Valve)-----	1 – 17Pages
	- Wall Thickness Measurement Procedure (for Gate Valve)--	1 - 7Pages
	- Wall Thickness Measurement Procedure (for Globe Valve)-1	- 7Pages
	- Cleaning Procedure (for Carbon & Low Alloy Steel)-----	1 - 6Pages
	- Cleaning Procedure (for Stainless Steel)-----	1 - 6Pages
	- Storage, Packing and Shipping Procedure-----	1 - 9Pages
Label 11	d) Welding Procedure Specification & Procedure Qualification Record--	1 - 73Pages
Label 12	5. Notice of Unsatisfactory Condition(UNC)-----	1 - 3Pages




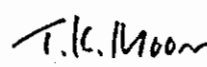

PACKING LIST

LIST NO. : KE061010-03

DATE : OCT. 10, 2008

PROJECT NAME : LUNG MEN PROJECT FOURTH NUCLEAR POWER PLANT	CONTRACT NO. : B749411M02100	EQUIPMENT DESCRIPTION : CHEVRON SEALED PACKING
UNIT #2, PART B - CHEVRON SEALED PACKING VALVE 2 ND SHIPMENT		VALVE
CUSTOMER : TAIWAN POWER COMPANY	SUPPLIER : SEO HEUNG METAL CO., LTD.	CLASS :

PACKAGE UNIT NO.	VALVE VDN NO.	TAG NO.	DESCRIPTION OF EQUIPMENT	QTY	NET WEIGHT (KG)	GROSS WEIGHT (KG)	WOODEN BOX MEASUREMENT (M ³)	REFERENCE DRAWING NO.
#14	VTW015-4-C14A1-G	2N23-BV-5515,5516,5518	GATE/V 150# BW WCB/13CR 8"	3	461	507	1.540	10801.MS021.25-22001
	VTW015-4-HE6C1-H	2N23-BV-5202	GATE/V 150# BW WC9/13CR 6"	1				10801.MS021.25-22008
#15	VTW015-4-HE6VF-G	2P13-BV-5011,5020	GATE/V 150# BW WC9/13CR 10"	2	367	404	1.550	10801.MS021.25-22002
#16	VTW015-4-HE6VF-G	2N23-BV-5085A	GATE/V 150# BW WC9/13CR 20"	1	719	791	2.580	10801.MS021.25-22003
#17	VTW015-4-HE6VF-G	2N23-BV-5085B	GATE/V 150# BW WC9/13CR 20"	1	719	791	2.580	10801.MS021.25-22003
#18	VTW015-4-HE6VF-G	2N23-BV-5085C	GATE/V 150# BW WC9/13CR 20"	1	719	791	2.580	10801.MS021.25-22003
#19	VTW015-4-HE6VF-G	2N23-BV-5115A	GATE/V 150# BW WC9/13CR 20"	1	719	791	2.580	10801.MS021.25-22003
#20	VTW015-4-HE6VF-G	2N23-BV-5115B	GATE/V 150# BW WC9/13CR 20"	1	719	791	2.580	10801.MS021.25-22003
#21	VTW015-4-HE6VF-G	2N23-BV-5115C	GATE/V 150# BW WC9/13CR 20"	1	719	791	2.580	10801.MS021.25-22003
#22	VTW015-4-HE6VF-G	2N23-BV-5143A	GATE/V 150# BW WC9/13CR 20"	1	719	791	2.580	10801.MS021.25-22003
#23	VTW015-4-HE6VF-G	2N23-BV-5143B	GATE/V 150# BW WC9/13CR 20"	1	719	791	2.580	10801.MS021.25-22003
#24	VTW015-4-HE6VF-G	2N23-BV-5143C	GATE/V 150# BW WC9/13CR 20"	1	719	791	2.580	10801.MS021.25-22003
#25	VTW015-4-HE6VF-G	2N23-BV-5173A	GATE/V 150# BW WC9/13CR 20"	1	719	791	2.580	10801.MS021.25-22003
#26	VTW015-4-HE6VF-G	2N23-BV-5173B	GATE/V 150# BW WC9/13CR 20"	1	719	791	2.580	10801.MS021.25-22003
#27	VTW015-4-HE6VF-G	2N23-BV-5173C	GATE/V 150# BW WC9/13CR 20"	1	719	791	2.580	10801.MS021.25-22003
#28	VTW015-4-HE6VF-G	2N23-BV-5175A	GATE/V 150# BW WC9/13CR 20"	1	719	791	2.580	10801.MS021.25-22003
#29	VTW015-4-HE6VF-G	2N23-BV-5175B	GATE/V 150# BW WC9/13CR 20"	1	719	791	2.580	10801.MS021.25-22003
#30	VTW015-4-HE6VF-G	2N23-BV-5175C	GATE/V 150# BW WC9/13CR 20"	1	719	791	2.580	10801.MS021.25-22003
#31	VTW030-4-HE6VF-G	2N21-BV-5003A	GATE/V 300# BW WC9/13CR 16"	1	895	985	2.160	10801.MS021.25-22004
#32	VTW030-4-HE6VF-G	2N21-BV-5003B	GATE/V 300# BW WC9/13CR 16"	1	895	985	2.160	10801.MS021.25-22004
#33	VTW030-4-HE6VF-G	2N21-BV-5003C	GATE/V 300# BW WC9/13CR 16"	1	895	985	2.160	10801.MS021.25-22004
#34	VTW030-4-HE6VF-G	2N21-BV-5003D	GATE/V 300# BW WC9/13CR 16"	1	895	985	2.160	10801.MS021.25-22004
#35	VTW030-4-HE6VF-G	2N21-BV-5032	GATE/V 300# BW WC9/13CR 18"	1	1,260	1,386	2.760	10801.MS021.25-22005
#36	VTW030-4-HE6VF-G	2N14-BV-5182A	GATE/V 300# BW WC9/13CR 20"	1	1,473	1,620	3.280	10801.MS021.25-22006
#37	VTW030-4-HE6VF-G	2N14-BV-5182B	GATE/V 300# BW WC9/13CR 20"	1	1,473	1,620	3.280	10801.MS021.25-22006
#38	VTW030-4-HE6VF-G	2N23-BV-5022A	GATE/V 300# BW WC9/13CR 30"	1	3,392	3,731	7.730	10801.MS021.25-22007
#39	VTW030-4-HE6VF-G	2N23-BV-5022B	GATE/V 300# BW WC9/13CR 30"	1	3,392	3,731	7.730	10801.MS021.25-22007
#40	VTW030-4-HE6VF-G	2N23-BV-5033A	GATE/V 300# BW WC9/13CR 30"	1	3,392	3,731	7.730	10801.MS021.25-22007
#41	VTW030-4-HE6VF-G	2N23-BV-5033B	GATE/V 300# BW WC9/13CR 30"	1	3,392	3,731	7.730	10801.MS021.25-22007
#42	VTW030-4-C13A1-E	2N23-BV-5190A,5190B	GATE/V 300# BW WCB/13CR 10"	2	545	600	3.010	10801.MS021.25-22009
SUBTOTAL				34	33,512	36,866	93.680	

PREPARED BY : 	REVIEWED BY : 	APPROVED BY : 
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PACKING LIST

LIST NO. : KE061010-03

DATE : OCT. 10, 2008

PROJECT NAME : LUNG MEN PROJECT FOURTH NUCLEAR POWER PLANT	CONTRACT NO. : 8749411MD2100	EQUIPMENT DESCRIPTION : CHEVRON SEALED PACKING
UNIT #2, PART B - CHEVRON SEALED PACKING VALVE 2 ND SHIPMENT		VALVE
CUSTOMER : TAIWAN POWER COMPANY	SUPPLIER : SED HEUNG METAL CO., LTD.	CLASS :

PACKAGE UNIT NO.	VALVE VDN NO.	TAG NO.	DESCRIPTION OF EQUIPMENT	QTY	NET WEIGHT (KG)	GROSS WEIGHT (KG)	WOODEN BOX MEASUREMENT (M ³)	REFERENCE DRAWING NO.
#43	VTW030-4-CI3A1-E	2N23-BV-5193B,5196B	GATE/V 300# BW WCB/13CR 10"	2	545	600	3.010	10801.MS021.25-22009
#44	VTW030-4-CI3A1-E	2N23-BV-5193A,5196A	GATE/V 300# BW WCB/13CR 10"	2	545	600	3.010	10801.MS021.25-22009
#45	VTW060-4-HE6C1-E	2N14-BV-5184A	GATE/V 600# BW WCB/13CR 10"	1	644	708	2.740	10801.MS021.25-22011
#46	VTW060-4-HE6C1-G	2N14-BV-5184B	GATE/V 600# BW WCB/13CR 10"	1	644	708	1.390	10801.MS021.25-22012
#47	VTW060-4-HE6C1-G	2N14-BV-5188A	GATE/V 600# BW WCB/13CR 10"	1	644	708	1.390	10801.MS021.25-22012
#48	VTW060-4-HE6C1-G	2N14-BV-5188B	GATE/V 600# BW WCB/13CR 10"	1	644	708	1.390	10801.MS021.25-22012
#49	VTW060-4-HE6VF-G	2N21-BV-5062A	GATE/V 600# BW WCB/13CR 18"	1	2,180	2,398	3.660	10801.MS021.25-22013
#50	VTW060-4-HE6VF-G	2N21-BV-5062B	GATE/V 600# BW WCB/13CR 18"	1	2,180	2,398	3.660	10801.MS021.25-22013
#51	VTW060-4-HE6VF-G	2N21-BV-5062C	GATE/V 600# BW WCB/13CR 18"	1	2,180	2,398	3.660	10801.MS021.25-22013
#52	VTW060-4-HE6VF-G	2N21-BV-5062D	GATE/V 600# BW WCB/13CR 18"	1	2,180	2,398	3.660	10801.MS021.25-22013
#53	VTW150-4-HE6VF-G	2N22-BV-5035	GATE/V 1500# BW WCB/13CR 10"	1	1,170	1,287	2.380	10801.MS021.25-22014
#54	VTW150-4-HE1KO-G	2N14-BV-5192A	GATE/V 1500# BW WCB/13CR 12"	1	1,671	1,838	2.340	10801.MS021.25-22015
#55	VTW150-4-HE1KO-G	2N14-BV-5192B	GATE/V 1500# BW WCB/13CR 12"	1	1,671	1,838	2.340	10801.MS021.25-22015
#56	VTW150-4-HE1KO-G	2N14-BV-5196A	GATE/V 1500# BW WCB/13CR 12"	1	1,671	1,838	2.340	10801.MS021.25-22015
#57	VTW150-4-HE1KO-G	2N14-BV-5196B	GATE/V 1500# BW WCB/13CR 12"	1	1,671	1,838	2.340	10801.MS021.25-22015
#58	VWW015-4-HE6A1-H	2N22-BV-5203,5559	GLOBE/V 150# BW WCB/13CR 6"	2	497	547	1.020	10801.MS021.25-22018
	VWW030-4-CI4AF-H	2N33-BV-5521	GLOBE/V 300# BW WCB/13CR 6"	1				10801.MS021.25-22018
	VWW015-4-CI4AF-G	2N23-BV-5026A	GLOBE/V 150# BW WCB/13CR 8"	1				10801.MS021.25-22017
#59	VWW015-4-CI4AF-G	2N23-BV-5177A,5177B,5177C 2N61-BV-5026B 2P13-BV-5007,5016	GLOBE/V 150# BW WCB/13CR 8"	6	1,095	1,205	1.770	10801.MS021.25-22017
#60	VWW060-4-CI4A1-G	2N21-BV-5029A,5029B,5029C,5030A, 5030B,5030C	GLOBE/V 600# BW WCB/13CR 6"	6	1,458	1,604	2.060	10801.MS021.25-22019
#61	VTW015-4-CI4A1-G		PACKING & GASKET 6"	24				MANDATORY SPARE PARTS
	VTW015-4-HE6VF-G		PACKING & GASKET 10"	16				
	VTW015-4-HE6VF-G		PACKING & GASKET 20"	120				
	VTW030-4-HE6VF-G		PACKING & GASKET 16"	32				
	VTW030-4-HE6VF-G		PACKING & GASKET 18"	8				
	VTW030-4-HE6VF-G		PACKING & GASKET 20"	16				
	VTW030-4-HE6VF-G		PACKING & GASKET 30"	32				
SUBTOTAL				281	23,290	25,619	44.160	

PREPARED BY : 	REVIEWED BY : 	APPROVED BY : 	
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PACKING LIST

LIST NO. : KE061010-03

DATE : OCT. 10, 2006

PROJECT NAME : LUNG MEN PROJECT FOURTH NUCLEAR POWER PLANT UNIT #2, PART B - CHEVRON SEALED PACKING VALVE 2 ND SHIPMENT	CONTRACT NO. : 8749411M02100	EQUIPMENT DESCRIPTION : CHEVRON SEALED PACKING VALVE
CUSTOMER : TAIWAN POWER COMPANY	SUPPLIER : SEO HEUNG METAL CO., LTD.	CLASS :

PACKAGE UNIT NO.	VALVE VDN NO.	TAG NO.	DESCRIPTION OF EQUIPMENT	QTY	NET WEIGHT (KG)	GROSS WEIGHT (KG)	WOODEN BOX MEASUREMENT (M ³)	REFERENCE DRAWING NO.
#61	VTW015-4-HE6C1-G		PACKING & GASKET 6"	8	200	250	1.330	MANDATORY SPARE PARTS
	VTW030-4-CI3A1-E		PACKING & GASKET 10"	48				
	VTW060-4-HE6C1-E		PACKING & GASKET 10"	8				
	VTW060-4-HE6C1-G		PACKING & GASKET 10"	24				
	VTW060-4-HE6VF-G		PACKING & GASKET 18"	32				
	VTW150-4-HE6VF-G		PACKING & GASKET 10"	8				
	VTW150-4-HE1K0-G		PACKING & GASKET 12"	32				
	VWW015-4-HE6A1-H		PACKING & GASKET 6"	16				
	VWW015-4-CI4AF-G		PACKING & GASKET 8"	56				
	VWW030-4-CI4AF-H		PACKING & GASKET 6"	8				
	VWW060-4-CI4A1-G		PACKING & GASKET 6"	48				
			TOUCH-UP PAINT QT-606 20L					
SUBTOTAL				288	200	250	1.330	
GRANDTOTAL				603	57,002	62,735	139.170	

PREPARED BY : 	REVIEWED BY : 	APPROVED BY :
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*SHIPPING MARK

CARGO DESCRIPTION: CHEVRON SEALED PACKING VALVES

CONTRACT NUMBER: 8749411M02100

PORT OF DESTINATION: KEELUNG, TAIWAN

CONSIGNEE: TAIWAN POWER COMPANY,
 DEPARTMENT OF NUCLEAR AND FOSSIL POWER PROJECTS.

SERIAL NUMBER OF PACKAGES: 14-61

GROSS WEIGHT AND NET WEIGHT: KGS / KGS

CAUTION: "NOT UPSIDE DOWN"

DIMENSIONS: X X CM

CONSIGNOR: SEOHEUNG METAL CO., LTD.
 1080-1 SHINGIL-DONG ANSAN-SI KYUNGGI-DO SOUTH KOREA.



DOCUMENT SUBMITTAL STATUS

\\na\유선연립부\01E_PIT_Work\T04017_Lungmen\A03_Quality\01_ga\1_main.xls\j02

Submittal Status[date format: mm-dd]																					
No.	Doc. No. 1	Doc. No. 2	Title	Rev	STS	Dept	Remark	rev.0	sis	rev.1	sis	rev.2	sis	rev.3	sis	rev.4	sis	rev.5	sis	rev.6	sis
L1	Doc. No. 1 : PIT 문서번호이며, 형식은 "82055.MS018.X-xxxx" 임. ""=82055.MS018."																				
L2	Doc. No. 2 : Manufacturer's 문서번호																				
L3	STS : Status(고객 검토 결과)																				
1	QM-200		QA Manual(Controlled Copy)	6	1	QA		04-26	05-25												
2	*4-00001		(ITP) Inspection and Test Plan	5	1	품질		05-25		06-21		07-09	05-02	07-04	07-21						
3	*4-00003		(ITP) ITP for Small Bore and Fittings	1	1	품질				11-04	11-05										
4	*4-00004		Quality Record List	0	1	품질		06-21	07-08												
5	*4-00005	PSAHCPGHD0003	Hydrostatic Test Procedure	1	1	품질		06-21		07-26	08-03										
6	*4-00006	PSAHCPGFA0001	Wall Thickness measure. Procedure	1	1	품질		06-21		07-26	08-03										
7	*4-00002	PS-LM-RT001	NDE Procedure(RT)	1	1	NDE		06-15		10-29	11-05										
8	*4-00007	PS-LM-MT001	NDE Procedure(MT)	1	1	NDE		06-15		10-29	11-05										
9	*4-00009	PS-LM-PT001	NDE Procedure(PT)	1	1	NDE		06-15		10-29	11-05										
10	*4-00009	PS-LM-UT001	NDE Procedure(UT)	1	1	NDE		06-15		02-14	02-25										
11	*8-02004	PSAHCPGWB0004	WPS and PQR	2	1	기술		07-02		08-12	09-24	02-14	03-15								
12	*8-02005	PSAHCPGRE0004	Welding/Welding Repair Proc.	1	1	기술		07-02		08-12	09-24										
13	*8-02006	PSAHCPGHA0004	PWHT Specification	1	1	기술		07-02		08-12	09-24										
14	*8-02002	PSZMAACL0001	Cleaning procedure(Large Bore)	3		출하							05-13	06-25							
15	*8-02007		Cleaning procedure(small bore)	1		출하				10-04											
16	*8-02009	PSAZMAAPT0001	Painting Procedure(Large Bore)	3	1	출하						02-18	04-07	04-08							
17	*8-02011		Painting Procedure(Small Bore)	3	1	출하															
18	*8-02008	PSAHCPGPS0004	Packing procedure(874-M0029)	1		출하															
19	(28)		Bending Procedure																		
20			PFI Code (ES-24)			실제															
21	*5-02001~15		Fabrication Standard Details	2,3,5	1	실제															
22	*8-02039	PSAHCPGWB0005	WPS and PQR	0		기술		03-29													
23	*8-02029	PSAHCPGPS0005	Packing procedure for Small Bore	1		출하				03-24											
24																					
1	*8-02044	PSAHCPGKA0002	Marking Procedure	1	-	기술				07-04											
2	WIAHCPGPK0001		Repacking after Internal Inspection for 6% Moly	0	-	기술		05-02													
3	PSAHCPGZA0005		소모성 자재 관리절차서	0	-	기술		04-01													
4	WI-00P-RP-001		C/S, A/S 임시부착물 부착 및 제거 지침서	0	-	기술		04-01													
5	WI-98P-GE-001		스테인레스강 용접작업 지침서	0	-	기술		04-01													
6	WI-99P-GA-001		Ar Gas Back Purging 작업	0	-	기술		04-01													
7	WI-99P-FA-001		S/S 배관 Temporary Piece 부착/제거 작업지침	0	-	기술		04-01													
8	WI-91P-FA-002		배관 Butt Weld Joint의 가공 및 Fit-up 작업기준	0	-	기술		04-01													
1			Hot/Cold Bending & Forming Procedure																		
2			Filler Metal Control Procedure																		
3			Welder Qualification Procedure																		
4																					



LUNGMEN PROJECT
RELEASE FOR SHIPMENT

Product Quality Certificate

CLIENT: Taiwan Power Company	TPC CONTRACT NO. 8749311M01800	SHIPMENT NO. 80
TPC SPECIFICATION NO. 874-MS-018(874-M-0029)	REV. 5	ADDENDA
PRODUCT Shop Fabricated ASME III Piping(All Size)		
DESCRIPTION		
SUPPLIER'S CERTIFICATION		
I HEREBY CERTIFY THAT THE PRODUCT(S) IDENTIFIED HEREIN HAVE BEEN MANUFACTURED UNDER A CONTROLLED PROGRAM AND ARE IN COMPLIANCE WITH THE APPLICABLE CODES, STANDARDS AND SPECIFICATIONS LISTED IN TPC PURCHASE SPECIFICATION REQUIREMENT.		
<u>Description</u>	<u>Q'ty</u>	<u>Unit</u>
Fabricated Pipe Spools	7 pcs	2
<u>Packing List No.</u>	<u>Remark</u>	
LM-MS018-081	-	
ALL SUPPORTING DOCUMENTATION REQUIRED BY THE ABOVE REFERENCED DOCUMENTS HAVE BEEN ISSUED TO TPC AUTHORIZED REPRESENTATIVE.		
SIGNED <i>M. K. Kim</i>	DATE <i>OCT-19-2006</i>	
TITLE <i>General Manager</i>	SUPPLIER Doosan Heavy Industries & Construction Co., Ltd.	
TPC REPRESENTATIVE CERTIFICATION¹		
THIS IS TO CERTIFY THAT EVIDENCE SUPPORTING THE ABOVE SUPPLIERS' CERTIFICATION STATEMENT HAS BEEN REVIEWED AND THAT NO DEVIATIONS FROM QUALITY ASSURANCE REQUIREMENTS HAVE BEEN FOUND UNLESS NOTED BELOW."		
SIGNED <i>F. C. Chien</i>	DATE <i>Oct. 19, 2006</i>	
TITLE <i>TPC QA Representative</i>	RFA NO. ---	
DEVIATIONS/NONCONFORMANCES FROM PURCHASE ORDER REQUIREMENTS		

1 - The TPC representative's certification does not release the supplier from their responsibility to provide work products that are acceptable under the contract nor does it preclude TPC's right to reject nonconforming work.

Section 4. List of Supplied Spools

Packing List No. : LM-MS018-081

S/N	Drawing No	Rev	Spool No	Doosan No
1	82055.MS018. 5-2201031	1	2N15LSA5004-1	DN-2688
2	82055.MS018. 5-2201032	1	2N15LSA5004-2	DN-2689
3	82055.MS018. 5-2201033	2	2N15LSA5005-1	DN-2690
4	82055.MS018. 5-2201041	3	2N15LSB5006-1	DN-2695
5	82055.MS018. 5-2201042	3	2N15LSB5006-2	DN-2696
6	82055.MS018. 5-2201043	3	2N15LSC5003-1	DN-2697
7	82055.MS018. 5-2201044	2	2N15LSC5003-2	DN-2698





**LUNG MEN PROJECT
RELEASE FOR SHIPMENT**

Product Quality Certificate

CLIENT: Taiwan Power Company	TPC CONTRACT NO. 8749311M01800	SHIPMENT NO. 81										
TPC SPECIFICATION NO. 874-MS-018(874-M-0029)	REV. 5	ADDENDA										
PRODUCT Shop Fabricated ASME III Piping(All Size)												
DESCRIPTION												
<u>SUPPLIER'S CERTIFICATION</u>												
I HEREBY CERTIFY THAT THE PRODUCT(S) IDENTIFIED HEREIN HAVE BEEN MANUFACTURED UNDER A CONTROLLED PROGRAM AND ARE IN COMPLIANCE WITH THE APPLICABLE CODES, STANDARDS AND SPECIFICATIONS LISTED IN TPC PURCHASE SPECIFICATION REQUIREMENT.												
<table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;"><u>Description</u></th> <th style="text-align: left;"><u>Q'ty</u></th> <th style="text-align: left;"><u>Unit</u></th> <th style="text-align: left;"><u>Packing List No.</u></th> <th style="text-align: left;"><u>Remark</u></th> </tr> </thead> <tbody> <tr> <td>Loose Parts Refer to Paccking List</td> <td>2</td> <td></td> <td>LM-MS018-082</td> <td>-</td> </tr> </tbody> </table>			<u>Description</u>	<u>Q'ty</u>	<u>Unit</u>	<u>Packing List No.</u>	<u>Remark</u>	Loose Parts Refer to Paccking List	2		LM-MS018-082	-
<u>Description</u>	<u>Q'ty</u>	<u>Unit</u>	<u>Packing List No.</u>	<u>Remark</u>								
Loose Parts Refer to Paccking List	2		LM-MS018-082	-								
ALL SUPPORTING DOCUMENTATION REQUIRED BY THE ABOVE REFERENCED DOCUMENTS HAVE BEEN ISSUED TO TPC AUTHORIZED REPRESENTATIVE.												
SIGNED <i>M. K. Kim</i>	DATE <i>OCT-19-2006</i>											
TITLE General Manager	SUPPLIER Doosan Heavy Industries & Construction Co., Ltd.											
<u>TPC REPRESENTATIVE CERTIFICATION¹</u>												
THIS IS TO CERTIFY THAT EVIDENCE SUPPORTING THE ABOVE SUPPLIERS' CERTIFICATION STATEMENT HAS BEEN REVIEWED AND THAT NO DEVIATIONS FROM QUALITY ASSURANCE REQUIREMENTS HAVE BEEN FOUND UNLESS NOTED BELOW."												
SIGNED <i>F. C. Chiu</i>	DATE <i>Oct. 19, 2006</i>											
TITLE <i>TPC QA Representative</i>	RFA NO. ---											
DEVIATIONS/NONCONFORMANCES FROM PURCHASE ORDER REQUIREMENTS												

1 - The TPC representative's certification does not release the supplier from their responsibility to provide work products that are acceptable under the contract nor does it preclude TPC's right to reject nonconforming work.

Detail Packing List (B)

Packing List No. : LM-MS018-082

Mark and Numbers, Packages	PKG. TYPE	UNIT	System No	Contract No	Description of Goods	MATERIAL	SIZE(mm), (OD * THK * L)	Quantity	REMARK
#001	BOX	2	P26	A. J. P26 5.9	ORIFICE FLANGE	SB564(N08367)	50 300#(15mm) WNRF S80S	12 pcs	
#001	BOX	2	W12	A. J. W12 5.7a	ORIFICE FLANGE	SB564(N08367)	50 300#(15mm) WNRF S80S	12 pcs	

24 PCS

The Corrective action for the QRP Clarification

CIC No	S/N	Issued Item to be clarified	Doosan's Reply	TPC's Comment	Doosan's action
C2902-CIC-TPC-1252M	a	<p>- There is no requirement for material B675 found in the attachment "3113-OA34-1220" of procurement Specification. Shall the material B675 meet the requirements specified for Austenitic Stainless steel?</p>	<p>The requirement specified for austenitic stainless steel in 3113-OA-1220 are not applied for SB675. They are applied for the following materials</p> <ul style="list-style-type: none"> - SA312 TP304/316/304L/316L : Material of S.S pipe, if applicable. - SA182 F304/316/304L/316L : Material of S.S forged fitting, if applicable - SA403 WP304/316/304L/316L : Material of S.S Butt-weld fitting, if applicable 	<p>No Comment.</p>	
	b	<p>The Procurement Specification does not define which S.S material will be used for the system of operating temp. 93 C and above, so it is impossible to identify the special requirement such as sensitization" or "Nitrogen Content" shall be applied or not</p>	<p>According to Amendment no.1, 3-13 page (Contract spec. book 3 of 7) of Lungmen Specification, 3113.62.2220, it says that "The requirement of Section 3.2.5 (Service over 93 C) of Document 31113-OA24-1220 shall apply to all wrought austenitic stainless steel material furnished under this specification as required in the Bill of Quantities. Attachment C"</p> <p>This means that the austenitic stainless steel material will be used for the system of operating temp. 93°C and above.</p>	<p>Doosan is requested to clarify that all wrought austenitic stainless steel material furnished under this specification meets the special requirement noted within the specification</p>	<p>1) Doosan checked and confirmed that all wrought austenitic stainless steel materials meet the special requirements required per each material type in Lungmen Specification 3113.62.2220.</p> <p>2) The Requirement of The Nitrogen Content shall be applied for Type 304, 316, but not for L-grade material.</p> <p>3) Doosan supplied L-Grade material for all S/S material. So, Nitrogen Content's requirement is not applicable.</p>
		<p>The Etching time shown on the CMTR does not meet the requirement specified in Appendix A10</p>	<p>- KOTRIC(SKBEND) performed sensitization test for the type of 316L according to Appendix A 10. The Specimen was immersed for 5 minutes according to Appendix A10. "5" is abbreviation of five minutes and "s" is abbreviation of Sample Surface in "5 s at 1 A/cm²" of test report. But the "5 sec" at 1 A/cm² made by human mistyping error was found on the other report in the same material. So, Doosane will investigate this error for other test report in same material and correct it and submit it TPC/S&W immediately.</p>	<p>Doosan is requested to correct the CMTR.</p>	<p>The CMTRs were corrected. Please refer to attachment.</p>

C/C Memo. No.	S/N	Issued Item to be clarified	Doosan's Reply	TPC's Comment	Doosan's action
3113-0A24-1252M	3	Requirement Specification specified the Hardness requirement for S.S material which will be used for the system of operating temp. 93°C and above. Is there any sampling requirement?	There is no additional sampling requirement.	General sampling requirements noted in 3113-0A24-1220, Appendix A10.4.1 shall be applied	The Hardness of S.S material which will be used for the system of operating temp. 93°C and above, was tested from each heat treat lot by manufacturer. It meets the sampling requirements noted in Appendix A10.4.1 of 3113-0A24-1220 for the material(S/S) sensitization test. And the test result was filled on the CMTR.
3113-0A24-1252M	5	Vendor's Report does not address the revision and date of the applicable written Quality System Program. It is difficult to verify whether the vendor is handled or not.	KOTRIC performed sensitization Test ordered by SKBEND (Material Maker) according to QA system which is mentioned on attachment #1 "Vendor Survey/Audit report". Doosan will request KOTRIC certified document which is specified applicable test report No. and QA Manual Rev.No. and revision date and submit it to TPC/S&W immediately.	Doosan is requested to correct the Vendor's Report.	The Vendor's Reports were corrected. Please refer to attachment.
3113-0A24-1252M	6	The number of test for SA333Gr.6 such as Tensile Test & Flattening Test does not meet the material specification	SKBEND practically performed two Tensile Test & Flattening Test like attachment #2 "Chemical analysis and Mechanical Test report" according to Material Specification. And SKBEND mentioned only one result on SKBEND CMTR. SKBEND could revise SKBEND CMTR if required.	Doosan is requested to correct the CMTR.	The CMTRs were corrected. Please refer to attachment.
3113-0A24-1252M	9	C/C issued by DOOSAN addressed the Sub Specs. No.3113.62.2220 but not the revision number. And some of the C/C addressed the "N" certificate and expired date. some does not.	- C/C No. CB-AHCPG-LP001 It was fixed as initial normal form which was recommended by Customer's inspector at first shipment inspection period(March 1~5,2005). But the form of C/C was changed during serial customer's inspection. Anyway, We revise the C/C(CB-AHCPG-LP001) with attachment which includes "N" certificate, expired date as last C/C form. Please refer to attachment #3. and change it from QRP. - C/C No. CB-AHCPG-LP-17-S01 This form is the last fixed form which was recommended by TPC/S&W during several inspection period. It is hard to adding Sub-spec. rev.No on C/C now because a number of C/Cs are already issued with this form.	1. Doosan is requested to revise the C/C 2. Please be advised that current C/C shall be revised to read "Certificate of Compliance"	The C of C was revised as your comment. Please refer to attachment.

C/C Mem. No.	S/N	Issued Item to be clarified	Doosan's Reply	TPC's Comment	Doosan's action
22012- C/C TPC -1266M	b	- Attachment of C/C, such as CB-AHCPG-LP-17-S01A which identifies the CMTR No. that provides the traceability among those doc. But does not include the CMTR No. such as "CB-AHCPG-LP001A.	- C/C No. CB-AHCPG-LP001 with Attachment List It was fixed as initial normal form which was recommended by Customer's inspector at first shipment inspection period(March 1 ~5,2005). But the form of C/C was changed during serial customer's inspection. Anyway, We revise the attachment which includes CMTR No. Please refer to attachment #4. and change it from QRP.	Doosan is requested to revise the C/C	The C of C was revised as your comment. Please refer to attachment.
	c	- UT report does not identify the I.D number(Heat No) which can be traced to the specific item	The identification Nos. on the UT report is addressed for each specific item as follows "1100105351 + 2 pipe S160 3/4 x 6000L = 1100105351-2" "1100105351-2" is marked on the certificate of each specific item. So, you can easily trace the specific item and material test report.	No Comment.	-

Index of revised report for QRP

1 of 2

S/N	Shipment	Volume No.	Page No.	Quantity	Remark	
1	01	1-001	02/01~02	2 sheets	C of C(for unit 1)	
2			04/07	1 sheets	CMTR	
3			04/12	1 sheets	CMTR	
4			04/13	1 sheets	CMTR	
5		2-001	02/01~02	2 sheets	C of C(for Unit 2)	
6			04/07	1 sheets	CMTR	
7			04/12	1 sheets	CMTR	
8			04/13	1 sheets	CMTR	
9	10	1 of 1	007	1 sheets	C of C	
10	15	1 of 2	18	1 sheet	C of C	
11			01/006~008	3 sheets	CMTR	
12			02/030~032	3 sheets	CMTR	
13			03/005~007	3 sheets	CMTR	
14			04/011~013	3 sheets	CMTR	
15			05/006~008	3 sheets	CMTR	
16			06/005~007	3 sheets	CMTR	
17			07/006~008	3 sheets	CMTR	
18			08/005~007	3 sheets	CMTR	
19			09/007~009	3 sheets	CMTR	
20			10/007~009	3 sheets	CMTR	
21			11/004~006	3 sheets	CMTR	
22			12/005~007	3 sheets	CMTR	
23			13/008~010	3 sheets	CMTR	
24			14/008~010	3 sheets	CMTR	
25			15/008~010	3 sheets	CMTR	
26			16/006/008	3 sheets	CMTR	
27			17/004~006	3 sheets	CMTR	
28			18/009~011	3 sheets	CMTR	
29			19/010~012	3 sheets	CMTR	
30			20/004~006	3 sheets	CMTR	
31			21/005~007	3 sheets	CMTR	
32			22/004~006	3 sheets	CMTR	
33			23/006~008	3 sheets	CMTR	
34			24/007~009	3 sheets	CMTR	
35			25/004~006	3 sheets	CMTR	
36			2 of 2	64/006~008	3 sheets	CMTR
37				65/008~010	3 sheets	CMTR
38		66/004~006		3 sheets	CMTR	
39		67/005~007		3 sheets	CMTR	
40	70/015A~016	3 sheets		CMTR		
41	71/006A~007	3 sheets	CMTR			
42	16	1 of 2	18	1 sheet	C of C	
43			01/006~008	3 sheets	CMTR	
44			02/030~032	3 sheets	CMTR	
45			03/005~007	3 sheets	CMTR	
46			04/011~013	3 sheets	CMTR	
47			05/006~008	3 sheets	CMTR	
48			06/005~007	3 sheets	CMTR	
49	07/006~008	3 sheets	CMTR			

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2 of 2

S/N	Shipment	Volume No.	Page No.	Quantity	Remark	
50	16	1 of 2	08/005~007	3 sheets	CMTR	
51			09/007~009	3 sheets	CMTR	
52			10/006~008	3 sheets	CMTR	
53			11/004~006	3 sheets	CMTR	
54			12/005~007	3 sheets	CMTR	
55			13/008~010	3 sheets	CMTR	
56			14/009~011	3 sheets	CMTR	
57			15/008~010	3 sheets	CMTR	
58			16/006~008	3 sheets	CMTR	
59			17/004~006	3 sheets	CMTR	
60			18/008~010	3 sheets	CMTR	
61			19/010~012	3 sheets	CMTR	
62			20/004~006	3 sheets	CMTR	
63			21/005~007	3 sheets	CMTR	
64			22/004~006	3 sheets	CMTR	
65			23/006~008	3 sheets	CMTR	
66			24/007~009	3 sheets	CMTR	
67			25/004~006	3 sheets	CMTR	
68			2 of 2	64/006~008	3 sheets	CMTR
69				65/008~010	3 sheets	CMTR
70				66/004~006	3 sheets	CMTR
71				67/005~007	3 sheets	CMTR
72				68/004~006	3 sheets	CMTR
73				69/004~006	3 sheets	CMTR
74				73/015A~016	3 sheets	CMTR
75	74/006A~007	3 sheets		CMTR		
76	17	1 of 1	07	1 sheet	C of C	
77	18	1 of 1	07	1 sheet	C of C	
78			02/006	1 sheet	CMTR	
79	23	1 of 1	01/02	1 sheet	C of C	
80			01/16~18	3 sheets	CMTR	
81			01/25~27	3 sheets	CMTR	
82			01/34	1 sheet	CMTR	
83			01/38~39	2 sheets	CMTR	
84			01/48	1 sheet	CMTR	
85			01/52~53	2 sheets	CMTR	
86			01/59	1 sheet	CMTR	
87			01/63~64	2 sheets	CMTR	
88	24	1 of 1	01/02	1 sheet	C of C	
89			01/16~18	3 sheets	CMTR	
90			01/25~27	3 sheets	CMTR	
91			01/34	1 sheet	CMTR	
92			01/38~39	2 sheets	CMTR	
93			01/48	1 sheet	CMTR	
94			01/52~53	2 sheets	CMTR	
95			01/59	1 sheet	CMTR	
96			01/63~64	2 sheets	CMTR	