

出國報告（出國類別：其他）

龍門計劃國外製造機械、儀電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：羅士貴 核能工程監

派赴國家：加拿大

出國期間：96年8月6日～96年8月17日

報告日期：96年9月19日

出國報告審核表

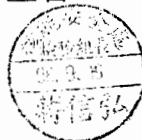
出國報告名稱：龍門計劃國外製造機械、儀電設備製程中品質查驗		
出國人姓名(2人以上，以1人爲代表)	職稱	服務單位
羅士貴	核能工程監	核能安全處
出國期間：96年8月6日至96年8月17日		報告繳交日期：96年9月13日
出國計畫主辦機關審核意見	☒ 1.依限繳交出國報告 ☒ 2.格式完整(本文必須具備「目地」、「過程」、「心得」、「建議事項」) ☒ 3.內容充實完備. ☐ 4.建議具參考價值 ☐ 5.送本機關參考或研辦 ☐ 6.送上級機關參考 ☐ 7.退回補正，原因： ☐ (1) 不符原核定出國計畫 ☐ (2) 以外文撰寫或僅以所蒐集外文資料爲內容以 ☐ (3) 內容空洞簡略 ☐ (4) 電子檔案未依格式辦理 ☐ (5) 未於資訊網登錄提要資料及傳送出國報告電子檔 ☐ 8.本報告除上傳至出國報告資訊網外，將採行之公開發表： ☐ 辦理本機關出國報告座談會(說明會)，與同人進行知識分享。 ☐ 於本機關業務會報提出報告 ☐ 9.其他處理意見及方式：	
	層轉機關審核意見 ☐ 1.同意主辦機關審核意見 ☐ 全部 ☐ 部分_____ (填寫審核意見編號) ☐ 2.退回補正，原因：_____ ☐ 3.其他處理意見：_____	

說明：

- 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」。
- 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。
- 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：

徐懷慶 9/21

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、儀電設備製程中品質查驗

頁數 70 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：羅士貴/台灣電力公司/核能安全處/

核能工程監/02-23667199

出國類別：☐1 考察☐2 進修☐3 研究☐4 實習☒5 其他

出國期間：96/8/6~96/8/17

出國地區：加拿大

報告日期：96/9/19

分類號/目

關鍵詞：龍門計畫、品質查驗

內容摘要：依據龍門計畫採購合約規定，派員赴 BOP 附屬機械設備製造廠家執行製程中品質查驗，本次任務為赴 MS019A1「Carbon/Alloy Steel, Valves (ASME III) Gate & Globe」採購案之製造廠家 VELAN Inc.，執行設備 Shipping Release 之品質查驗，包括 Final / Packing Inspection、QRP(Quality Record Package)審查及簽署 PQC(Product Quality Certificate)。

本文電子檔已傳至出國報告資訊網 (<http://report.gsn.gov.tw>)

出國報告（出國類別：其他）

龍門計劃國外製造機械、儀電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：羅士貴 核能工程監

派赴國家：加拿大

出國期間：96 年 8 月 6 日 ~ 96 年 8 月 17 日

報告日期：96 年 9 月 19 日

龍門計劃國外製造機械、儀電設備製程中品質查驗

摘 要

依據龍門計畫採購合約規定，派員赴 BOP 附屬機械設備製造廠家執行製程中品質查驗，本次任務為赴 MS019A1「Carbon/Alloy Steel, Valves (ASME III) Gate & Globe」採購案之製造廠家 VELAN Inc.，執行設備 Shipping Release 之品質查驗，包括 Final / Packing Inspection、QRP(Quality Record Package)審查及簽署 PQC(Product Quality Certificate)。

龍門計劃國外製造機械、儀電設備製程中品質查驗

目 次

壹、出國任務說明-----	P.1
貳、出國行程-----	P.1
參、品質查驗工作報告-----	P.1
肆、出國期間所遭遇之困難與特殊事項-----	P.15
伍、心得與建議-----	P.15
陸、附件-----	P.16

壹、出國任務說明

本項出國計畫為依據龍門計畫採購合約規定，派員赴 BOP 附屬機械設備製造廠家執行製程中品質查驗，本次任務為赴 MS019A1「Carbon/Alloy Steel, Valves (ASME III) Gate & Globe」採購案之製造廠家 VELAN Inc.，執行設備 Shipping Release 之品質查驗，包括 Final / Packing Inspection、QRP(Quality Record Package)審查及簽署 PQC(Product Quality Certificate)。

貳、出國行程

96.8.6~96.8.7	台北-紐約-蒙特婁	往 程
96.8.8~96.8.14	加拿大 VELAN 公司	執行品質查驗
96.8.15~96.8.17	蒙特婁-紐約-台北	返 程

參、品質查驗工作報告

一、MS019A1 採購案簡述

- 龍門計畫 MS019A「Carbon/Alloy Steel, Valves (ASME III) Gate, Globe, Check, Ball, Plug and Butterfly」採購案，採購規範為 Specification No. 874-M0033 Revision No.2 Amendment 5 (BOP Valves)，以及 GE Specification No. 31113.62.3898 Revision No.3 Amendment 5 (BONI Valves)，採購設備為 Carbon and Alloy Steel 之 Manually-Operated Valves，並分為下列六種 Valve Type 分開招標：

Part A	Globe Valve
Part B	Gate Valve
Part C	Check Valve
Part D	Ball Valve
Part E	Plug Valve
Part F	Butterfly Valve

2. 招標後決標結果由加拿大 Velan 公司得標 Part A & Part B 之 Globe Valve 及 Gate Valve，採購合約訂為 8749111M019A1；美國 Flowserve US Inc. (Raleigh 廠) 得標 Part C, D, E & F 之 Check Valve、Ball Valve、Ball Valve、Plug Valve 及 Butterfly Valve，採購合約則稱 8749111M019A2。

龍門計畫 MS019A 採購案之 Valve 大部份為 50mm(2")以下，數量龐大的 Smaller Valves，少部份為 80mm(3") Valve，兩個合約採購之 Valve 均各約有四千多個，採購設備大部份用在 BONI，少部份用在 BOP；本採購案因多次變更合約及 GE 公司時常在修訂 BONI 部份之 Valve 數量，致整個履約時程迄今已近四年才接近完成。

3. MS019A1 採購案由 Velan 公司得標承製，總公司及工廠地點均位於加拿大蒙特婁市之郊區，Velan 公司是一家非常專業之閥類製造廠家，蒙特婁廠區即有四家工廠，其中“Plant 1”佔地 10,126 平方公尺專門生產 1/4"~4" (8~100mm) 之 Gate、Globe、及 Check 等 Valves，為 ASME “N” Stamp 及 ISO 9000 驗證合格工廠，本公司 MS019A1 採購案大部份為 50mm(2") 以下之 Smaller Valves 即在此“Plant 1”製造生產；另“Plant 2”佔地 15,800 平方公尺專門生產 2"~60" (50~1500mm) 之 Forged and Cast steel Valve，包括：Gate、Globe、Check、Ball 及 Butterfly 等 Valves，亦為 ASME “N” Stamp 及 ISO 9000 驗證通過合格之 Valve 製造工廠，本公司 MS019A1 採購案少部份之 3"及 3" 以上的 Valves 即在此“Plant 2”製造生產。

二、品質查驗依據文件

1. 龍門計劃 MS019A1 「Carbon/Alloy Steel, Valves (ASME III)

Gate & Globe」採購案之製造廠家為 Velan 公司，作業場所位於加拿大蒙特婁之“Plant 1”、“Plant 2”及總公司。本次品質查驗主要任務為，執行 Stainless Steel & Carbon Steel 之 Gate Valves & Globe Valves 及合約 Spare Parts 等設備 Shipping Release 之 Final / Packing Inspection、QRP (Quality Record Package)審查及簽署 PQC (Product Quality Certificate)。

2. MS019A1 廠家 Velan 於 2007.7.10 以函 VI-TPC-MS019A1-0042 通知本公司，於 2007.8.8 起執行二號機 Stainless Steel & Carbon steel for Globe Valve/Gate Valve，以及一、二號機 Spare Parts for Packing Rings & Gaskets 之”Final Notification for Documentation & Final Inspection Hold Points”。(詳附件一)

A. Gate Valve 及 Globe Valve 品質查驗包括下列廠家 Velan Order Number 之 Valve，合計 1,379 個 Valves：

X011-273080-K-25PCS

X011-273190-K-8PCS

X011-273210-K-225PCS

X011-273070-N-215PCS

X011-273180-N-194PCS

X011-273200-N-712PCS

B. Spare Parts for Packing Rings & Gasket (Unit 1 & Unit 2)

品質查驗包括下列廠家 Velan Order Number 之 Spare Parts，合計 19,402 個 Packing Rings & Gasket。

Unit 1 X011-595591-B X011-595801-B

X011-595811-B X011-595821-B

X011-595831-B

Unit 2 X011-595592-B X011-595802-B

X011-595812-B X011-595822-B

X011-595832-B

3. 品質查驗依據文件

1. Specification No. 874-M0033 Rev. No. 3, A5.(BOP Valves)
2. GE Specification No. 31113.62.3898 Rev. No.3, A3. (BONI Valves)
3. Manufacturing & Inspection Plans/Quality Plan
(VEL-QCI-4212, Rev.2)
4. Quality Records List (VEL-QCI-4332, Rev.1)
5. Hydrostatic Testing of ASME III Gate and Globe Valves
(VEL-NDT-925 Rev. 2)
6. Cleaning of Carbon Steel Valves (VEL-P-862)
7. Cleaning of Stainless Steel Valves (VEL-P-863)
8. Packaging Procedure (VEL-P-856)

三、品質文件審查

1. 相關製程品質文件之送審查核，經查下列品質文件本公司/石威公司已完成”Review Status 1 or 4”審核：
 - a. QA Manual Rev.10 (SWT-VI-MS019A1-000061)
 - b. Inspection and Test Plan (SWT-VI-MS019A1-000100)
 - c. Quality Record List (SWT-VI-MS019A1-000049)
 - d. Hydro Test Procedure (SWT-VI-MS019A1-000065)
 - e. Welding Procedure (SWT-VI-MS019A1-000099)

- f. Wall thickness Measurement Procedure
(SWT-VI-MS019A1-000020)
- g. NDE Procedure for LP & RT (SWT-VI-MS019A1-000028)
- h. NDE Procedure for UT (SWT-VI-MS019A1-000025)
- i. Cleaning Procedure for CS/SS (SWT-VI-MS019A1-000020)
- j. Painting Procedure, Visual Inspection Procedure & Ferrite
Measurement Procedure (SWT-VI-MS019A1-000020)
- k. Packing Procedure (SWT-VI-MS019A1-000074)

2. 設計圖面及設計報告審核狀況查核，因本次查驗設備為合約 BONI 部份由 GE 公司負責設計，經查其設計圖面及設計報告已經 GE 審核為“RD”或“NE”通過，並由本公司/石威發函廠家通知其圖面及相關 Design Report 審核狀況如下：

➤ Valves Outline and Assembly 部份

As-built Drawing	GE Review Code (Approval Letter)	Design Report
X011-273080-K02A R1	“RD”(SWT-VI-MS019A1-000134)	2558
X011-273080-K03A R1	“RD”(SWT-VI-MS019A1-000134)	2557
X011-273080-K04A R1	“RD”(SWT-VI-MS019A1-000134)	2556
X011-273190-K03A R1	“RD”(SWT-VI-MS019A1-000134)	2562
X011-273190-K05A R1	“RD”(SWT-VI-MS019A1-000134)	2574
X011-273190-K06A R2	“NE”(SWT-VI-MS019A1-000154)	2573
X011-273210-K02A R2	“NE”(SWT-VI-MS019A1-000165)	2552
X011-273210-K03A R1	“RD”(SWT-VI-MS019A1-000134)	2565
X011-273210-K04A R1	“RD”(SWT-VI-MS019A1-000134)	2578
X011-273210-K05A R1	“RD”(SWT-VI-MS019A1-000134)	2565
X011-273070-N02A R2	“NE”(SWT-VI-MS019A1-000154)	2557
X011-273070-N03A R1	“RD”(SWT-VI-MS019A1-000134)	2558

X011-273070-N04A R2	“NE”(SWT-VI-MS019A1-000154)	2557
X011-273070-N05A R1	“RD”(SWT-VI-MS019A1-000134)	2556
X011-273070-N09A R1	“RD”(SWT-VI-MS019A1-000134)	2560
X011-273180-N02A R1	“RD”(SWT-VI-MS019A1-000134)	2551
X011-273180-N04A R3	“NE”(SWT-VI-MS019A1-000178)	2573
X011-273180-N05A R1	“RD”(SWT-VI-MS019A1-000134)	2561
X011-273180-N06A R1	“RD”(SWT-VI-MS019A1-000134)	2562/2563
X011-273180-N07A R2	“NE”(SWT-VI-MS019A1-000154)	2564
X011-273180-N09A R2	“NE”(SWT-VI-MS019A1-000166)	2576
X011-273180-N10A R1	“RD”(SWT-VI-MS019A1-000134)	2565/2566
X011-273180-N11A R1	“RD”(SWT-VI-MS019A1-000134)	2579
X011-273180-N15A R1	“RD”(SWT-VI-MS019A1-000134)	2582
X011-273200-N01A R1	“RD”(SWT-VI-MS019A1-000134)	2552
X011-273200-N02A R1	“RD”(SWT-VI-MS019A1-000134)	2553
X011-273200-N03A R1	“RD”(SWT-VI-MS019A1-000134)	2552
X011-273200-N04A R1	“RD”(SWT-VI-MS019A1-000134)	2553
X011-273200-N05A R1	“RD”(SWT-VI-MS019A1-000134)	2553
X011-273200-N06A R1	“RD”(SWT-VI-MS019A1-000134)	2565/2566
X011-273200-N07A R2	“NE”(SWT-VI-MS019A1-000154)	2567/2568
X011-273200-N08A R1	“RD”(SWT-VI-MS019A1-000134)	2578
X011-273200-N12A R1	“RD”(SWT-VI-MS019A1-000134)	2583

註：GE Review Code 代號說明

“RD”-Received for Distribution (Acknowledged the document was received and distributed without review. Submit any future revisions of the document.)

“NE”-No Exceptions Noted (Indicates no specific objections to the document. Work may proceed. Submit only future revisions of the document,)

➤ Valves Design Report 部份

本次品質查驗範圍 Valves 之相關 Design Report(設計報告)，本公司/石威以 SWT-VI-MS019A1-000180 函覆廠家 Velan，設計報告 GE 已以函 GEAE-2007-0212 審查通過為“RD”。(詳附件二)。

四、Final/Packing Inspection

1. 本採購案為屬 ASME III 之 Code Stamped Valves 均有兩個 Tag，一個為 Code Tagging 另一為 ID Tagging，在 Packing 前經查驗設備表面均很清潔，Valve Openings 部份均用塑膠蓋封閉以保護 Valve 之 Butt Weld End 或 Socket Weld End。

2. 因本採購案 Valve 大部份均為 2”以下之 Valve，Valve 包裝係先將 Valve 放入可密封之塑膠袋，再擺放二小包乾燥劑後將開口密封，塑膠袋包裝妥之 Valve 再放入小紙箱，紙箱再放入標準貨櫃使用之木板條箱，其尺寸之 LxWxH 為 122x82x93 cm)，因係均為 2”以下之 Valve，故一個木箱可裝約 26~48 只 Valve，內部裝妥之紙箱^則以木板條壓穩固定並釘妥，之後再擺入大包乾燥劑及防撞泡棉布，木箱在蓋上上蓋封釘後接合處再灌入矽膠密封；木箱之前端木板有一挖空約為 2”^之圓洞，改以透明玻璃密封圓洞，洞內擺放可視之濕度 Indicator，最後木箱外依合約規範要求噴上 Shipping Mark 及貼妥以塑膠袋包封之 Packing List(詳附件三)。

MS019A1 設備木箱裝妥後將放入標準貨櫃，並以貨櫃交運到龍門工地。

3. 經抽查下列木箱之 Valve Packing 狀況：

- Valve Box 編號#5-90(Tracking No.A19510-00)，此 Box 包括 48Valves，其 Valve Tag Number 如下：

2P21-BV-0005A1、2P21-BV-0005C3、2P21-BV-0018B、
2P21-BV-0027A、2P21-BV-0027C、2P21-BV-0030B、
2P21-BV-0115B、2P21-BV-0501B2、2P21-BV-0501C2、
2P21-BV-0502B1、2P21-BV-0506B1、2P21-BV-0506B3、
2P21-BV-0506C、2P21-BV-0506C3、2P21-BV-0510A1、
2P21-BV-0510B1、2P21-BV-0518C、2P21-BV-0519B、
2P21-BV-0534A1、2P21-BV-0534B1、2P21-BV-0534C1、
2P21-BV-0536A、2P21-BV-0536B、2P21-BV-0587C、
2P21-BV-0616A、2P21-BV-0624A、2P21-BV-0625B1、
2P21-BV-0632B、2P21-BV-0638A、2P21-BV-0638B、
2P21-BV-0638C、2P21-BV-0663A、2P21-BV-0500A1、
2P21-BV-0500A2、2P21-BV-0502A、2P21-BV-0612、
2P21-BV-0528A、2P21-BV-0552B、2P21-BV-0554B、
2P21-BV-0554C、2P21-BV-0572B、2P21-BV-0573A、
2P21-BV-0573B、2P21-BV-0576A、2P21-BV-0577A、
2P21-BV-0579A、2P21-BV-0614、2P21-BV-0616。

- Valve Box 編號#5-114(Tracking No.A19567-00)，此 Box 包括 26Valves，其 Valve Tag Number 如下：

2G31-BV-0505、2G31-BV-0507、2G31-BV-0509、
2G31-BV-0511、2G31-BV-0515、2G31-BV-0517A、
2G31-BV-0517B、2G31-BV-0519A、2G31-BV-0519B、
2G31-BV-0521A、2G31-BV-0521B、2G31-BV-0523A、

2G31-BV-0523B 、2G31-BV-0527A 、2G31-BV-0527B 、
2G31-BV-0542 、2G31-BV-0546 、2G31-BV-0548 、
2G31-BV-0553 、2G31-BV-0555 、2G31-BV-0557 、
2G31-BV-0561 、2G31-BV-0568 、2G31-BV-0580 、
2G31-BV-0581 。

查驗結果以上 Velves 之 Final/Packing Inspection 均能符合廠家 Cleaning Procedure & Packing Procedure，以及採購技術規範之要求。

4. Spare Parts for Packing Rings & Gasket (Unit 1 & Unit 2)部份之 Final/Packing Inspection，經抽查結果亦符合廠家程序書及規範要求。

五、QRP（成套品質紀錄）審查

1. 本次 QRP（Quality Records Package）審查，包括二號機 Stainless Steel & Carbon steel 之 Gate Valves/Globe Valves，以及一、二號機 Spare Parts for Packing Rings & Gaskets，Valves 部份之 QRP 計 6 大巨冊合計共 3,491 頁；Spare Parts 部份之 QRP 計 2 小冊（各冊約 170 頁）。
2. Valve QRP 部份之 Quality Record Package Index，經審查與 Velan 送審核准之 QRL(Quality Record List)相符合。
QRP 審查係依據採購技術規範及合約設備規格需求項目 (Item)，以及廠家 Velan 作業程序書及設計圖面等之要求，再配合 Velan 製造產品及製造文件/紀錄之識別與追溯規定，予以審查 QRP。

茲以 Velan QRP 之其中一個 Data Package Number 為 061137 之例說明審查 QRP 經過。

Data Package Number: 061137 亦稱 Velan S/N(Serial Number): 061137，其製造品質紀錄產生由來為，廠家 Velan 依其生管需求製作出 Velan Order Number（例：X011-273070-N）及 Line Item Number（例：B07-04），設計製造圖面之 Valve Outline and Assembly Drawings（例：X011-273070-N04A），Velan 文件/紀錄之蒐集建檔則依其同一圖號且相同 Item 之 Valves 訂出 S/N(例：061137)，並以此 S/N 作為 Data Package Number（例：061137）建立檔案，作為該 Line Item Number 紀錄/文件之識別與追溯。

Data Package Number：061137 之 QRP 審查，首先依其 Certificate of Compliance 的 QC Check List-Documentation /NDE 欄位之 Component item（例：Body、Bonnet、Stud、Nut、Stem 等），再配合前述各 item，是否需執行 S/N(Serial Number)、H/C(Heat Code)、Material Spec.、CMTR、PT、MT、UT、RT 等要求及其相關圖面（詳附件四），再逐項核對其 ASME Code Data Report、ASME Code Design Report、As Built Outline and Assembly Drawings、Material Test Report、CMTR Hardface Materials、CMTR Weld Filler Materials、Heat Treat Records、NDE Records、Hydrostatic and Leak Test Report、Visual, Dimension and Wall Thickness Record、Operating and Maintenance Manual、以及相關 Valve 製造時所需檢定之 Weld Procedures (WPS/PQR) & Hardface Procedures (WPS/BPS/PQR)、Inspection Personnel & Welder Qualifications 等銓定紀錄。

在 Valve QRP 部份審查作業過程中，發現可能係 MS019A1 採購案之設備已交運過 4 次，有經過石威檢驗員執行 QRP 審查之多次經驗，以及發現 Velan QA/QC 人員投入 QRP 蒐集、製作、審核之人力不少，故本次 QRP 審查未發現重大缺失，小缺失如 Certificate of Compliance 之 QC manager 漏簽名，文件編頁有誤等外無重大缺失，小缺失並經廠家即刻補正，審查結果符合品質要求。

3. Spare Parts for Packing Rings & Gaskets 部份，其 Quality Record Package Index 為 Visual, Dimension Record、Buyer's Product Quality Certificate (PQC)、Supplier's Certificate of Compliance 等紀錄文件，經審查一、二號機 Spare Parts for Packing Rings & Gaskets 之 QRP 計 2 冊，除發現廠家僅整理出 Spare Parts 相關 Valve 之 ID Number、Visual, Dimensional Record 及 Certificate of Compliance 未開立 PQC 外，未發現其他缺失，PQC 經廠家開立並簽署後，經審查結果符合品質要求。

六、PQC(Product Quality Certificate)簽署

1. 依據採購規範及 Quality Plan 之要求，所有 Valves 及 Spare Parts 必需經由 TPC 或 TPC 代表簽字後才能交運，故本次任務即為執行採購設備 Final / Packing Inspection、QRP 審查，結果若合格即簽署廠家 Velan Issued 之 Product Quality Certificate (PQC)，作為設備可交運之依據。
2. 本次查驗二號機 Stainless Steel & Carbon steel 之 Gate & Globe Valves（合計 1,379 Valves）的 QRP 審查，經審查後

無意見，以及經抽驗 Valves 木箱編號 Box: #5-90 及 #5-114 (Tracking No.A19510-00 及 A19567-00)之 Final / Packing Inspection 均符合採購規範之要求，故在 Valve QRP 之 Quality Record Package Index 及其 PQC 簽名（詳附件五）。

一、二號機 Spare Parts for Packing Rings & Gaskets（合計 19,402 Parts）之 QRP 審查及 Final/Packing Inspection 亦符合採購規範之要求，並在 Spare Parts QRP 之 Quality Record Package Index 及其 PQC 簽名（詳附件六）。

七、相關 NUC 及 NCR 查證

1. 經查本採購案石威檢驗員曾開出二件 NUC(Notice of Unsatisfactory Condition)，查證如下：

➤ NUC No. 10072

NUC No. 10072 為於 2004.10.8 驗證 Hydrostatic Testing 時，發現有一 3” 150-psig Gate Valve (S/N:281378-28)於執行低壓之 Air Seat Test 時，發生 Air Leakage 現象而開出 NUC 要求改正；廠家 Velan 並立即依其作業程序開出 Rejection Notice No. 281378-28 進行處理，廠家提出之改正行動(Corrective Action)為經分析評估發生 Air Leakage 為 Disc Profile 問題，將把 Valve 之 seats and wedge 做 re-lapping 後 retested，並回覆已通過 test。

經查本 NUC 之 Verification(S&W)欄位未有簽名查證結案動作，惟 S&W 之 NUC Log 則註明 NUC Closed by Letter，洽詢廠家稱未收到 Letter，然而此 NUC 發生之閥即是下

述廠家 NCR 有關 3" Class 150, Gate Valve 之 CN3MN 材料，未依照 ASTM G48 method C 進行 Critical Pitting Test 之閥，最後因 NCR 處理為該等閥需廢棄重新製造，故本 NUC 是否已 Closed 之問題已無意義，廠家並再對本 NUC 提出說明（詳附件七）。

➤ NUC No. 10923

NUC No. 10923 為檢驗員於 2006.10.31 查驗 Final/Packing Inspection 及 QRP Review 時，其相關 Valves 之 Hydrostatic Test Report 廠家於 2006.10.27 才送 TPC/S&W 審核，因尚未接獲審核通過之回函，故影響相關 Valve 之 PQC 簽署而開立；經查 Hydrostatic Test Report 已於 2006.11.27 獲 TPC/S&W/GE 審核通過，並由 S&W Inspector Mr.Leo Yelle Jr 於 2006.11.30 將 NUC Closed，並簽署相關 PQC。

2. 本採購案廠家有一件 NCR(Nonconformance)之處理方式為“Accept as is”，依採購規範規定需送本公司審核同意，經查證如下：

➤ NCR 30283

依據合約規範 M0033 圖號 X012-273060-N01 Rev.8（3" Class 150, Gate Valve）材料規範為 SA 351 之 CN3MN 材料，需使用樣品參照 ASTM G48 method C 進行 Critical Pitting Test，惟廠家 Velan 未執行該 Test，於 2006.8.8 開出 NCR 30283，評估後其處理(Disposition)方式為“Accept as is”，故廠家函本公司審核是否同意，經本公司/石威審查後不同意；惟廠家再函稱當初係遺漏執行該 Test，現階段已無相同樣品可供 Test，並另提送其他 ASTM A262

Standard 測試報告，要求本公司接受廠家對 NCR 30283 之處置“Accept as is”，經本公司/石威評估審查後仍不同意廠家之“Accept as is”處置。

本 NCR 影響之一、二號機 Valves 各有 24 個共計 48 個管閥（詳附件八）。

由於本 NCR 案經雙方澄清說明多次後，本公司仍不同意廠家之“Accept as is”要求；惟其經過知之程已近一年，廠家最後已重新買材料製造，迄今尚未完成；故本次執行品質查驗範圍並不包括這些重做之 48 個管閥。

本次執行品質查驗時並赴“Plant 2”瞭解本 NCR 案重做 48 個管閥之製造情況，經查證廠家已新購本 NCR 案 CN3MN 材料之 Body 及 Bonnet 等鑄件半成品，已執行完進料檢驗準備製造；惟因近來 Velan “Plant 2”之生產排程頗忙碌，目前尚無法排進製程，經與“Plant 2”之 QA Manger 及 General Manger 討論後，Velan 稱預計約需二至四個月快得話二個月才可完成，並提醒廠家需注意交貨期限，否則會發生採購 LD(Liquidated Damages)；另經查原發生 NCR 之管閥 Unit 1 部份已完成並棄放於廠房一隅，廠家擬以成品轉售給對品質要求較低之採購者。

八、品質查驗廠家接洽人員

Mr. Adolf Karl Velan (CEO/Founder)

Mr. Ralph A. Sargent (Vice President, International Marketing)

Mr. John Tsesmelis (General Manager, Plant 1)

Mr. Osvaldo Rodrigues (Quality Control Manager, Plant 1)

Mr. Dan Traian Garacas (Quality Assurance Manager, Plant 1)

Mr. Yvon Castonguay (General Manager, Plant 2)

Mr. Zoltan Palko (Quality Assurance Manager, Plant 2)

Mr. Luigi Nitti (Project Engineer)

Miss Barbara Alleyne (Sales Order Administrator)

九、有關 MS019A1「Carbon/Alloy Steel, Valves (ASME III) Gate & Globe」採購案之閥交運，執行 Final / Packing Inspection、QRP 審查及簽署 PQC 作業情況之照片如附件九。

肆、出國期間所遭遇之困難與特殊事項

無。

伍、心得與建議

綜合本次廠家製程中品質查驗之經驗，心得如下：

1. MS019A1 採購案廠家 Velan 公司是 ASME “N” Stamp 及 ISO 9000 驗證合格非常專業之閥類製造廠家，除加拿大境內有 6 個工廠外，在歐美及亞洲亦計有 8 個工廠；本公司龍門計畫 MS034「Make-up Water Treatment System」採購案廠家日本 HITACHI，以及龍門施工處核島區機械管路安裝工程之承包商中鼎公司，均將 Velan 公司（蒙特婁廠）列為合格分包商（Subsupplier）；其中 MS034 採購之 Automatic Valve（Globe Valve、Check Valve 及 Ball Valve）已交貨，中鼎公司採購部份正在製造中。

經實際赴 Velan 廠瞭解發現 Velan 之生產線非常忙碌，並參觀其研發及設計部門發現 Velan 公司非常重視研發及設計，其陣容龐大，人員素質頗佳。然而 MS019A 採購案可能當初為趕著招標時程，造成 GE 日後設計變更頻繁設備數量常修訂，以及石威公司設計審查回覆受致於 GE 公司，且早期

Velan 與本公司相關單位、石威及 GE 之溝通情況亦不是很好，故造成 MS019A1 採購案廠家設備生產狀況不順抱怨頻頻，本公司相關單位、石威及 GE 亦頗感困擾，致造成履約期已近四年。

2. MS019A1 採購案廠家 Velan 公司之品質保證系統完善，無論是品質文件送審、品質紀錄之審核及重要製程之品質檢驗，均非常嚴謹，還^有是 QA/QC 人員對設備品質文件與紀錄審查之規定均能充分瞭解，執行作業亦頗落實。

陸、附件

VELAN, Inc. (Plant 1)

2125 Ward Avenue
Montreal, Quebec
Canada H4M 1T5

Tel: (514) 748-7743
Fax: (514) 748-4891
Web: www.velan.com



0707 - 5316

Mr. S.H. Liao
Project Manager,
Department of Nuclear Engineering (DNE)
Taiwan Power Company
62 Yen-Hai Street, Kung-Liao
Taipei County, 22844
Taiwan, R.O.C.
Fax: 886-2-2490-3032

July 10, 2007

VI-TPC-MS019A1-0042

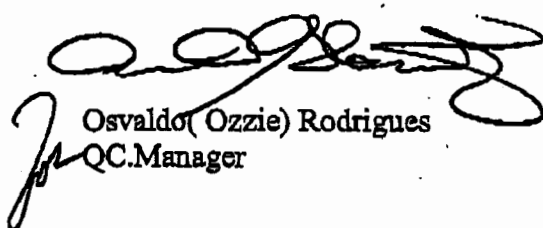
Response Required: Yes

Subject : Lungmen Nuclear Power Project Units 1, 2
Contract 8749111M019A1
Stainless Steel & Carbon Steel valves (ASME III) Globe
Final Notification for Documentation & Final Inspection Hold Points

Dear Mr. Liao,

Attached please find Final Notification for Documentation & Final Inspection hold points, for your action.

Sincerely,



Osvaldo (Ozzie) Rodrigues
QC Manager

cc: Mr. H.K. Lai, TPC Project Manager, DNFFP, Fax 886-2-2391-0281

CERTIFIED TO ISO 9001 QUALITY STANDARDS

LUNG MEN WITNESS/HOLD POINT NOTIFICATION**Preliminary Notification**Notification Date: July 10, 2007Ref: VI-TPC-MS019A1-0042Specification No.: 31113.62-3898-rev.3Supplier Name: VELAN INC.Equipment Name: STAINLESS STEEL & CARBON STEEL VALVESActivity to be Witnessed: DOCUMENTATION & FINAL INSPECTIONDate/Duration of Scheduled
Activity:X011-273080-K -25PCSX011-273190-K -8PCS/ X011-273210-K -225PCSTOTAL: 258Applicable Procedure
Numbers/RevisionVEL-OCI-4214 Rev 5 Operation 5, 7(Item No.) ID No.: SEE ATTACHED LISTQuality Plan No./Revision: VEL-OCI-4214 Rev 5 Witness/Hold Point No.: HLocation of Activity: VELAN INC2125 Ward AvenueMONTREAL, QUEBECCANADA, H4M 1T6Name of Local Contact: Ozzie Rodrigues QC. ManagerPhone No.: 514-748-7748 local 1187Fax No.: 514-748-4891 email orodrigu@velanvalve.comRecommended Airport: Pierre Elliot Trudeau International Airport-MontrealRecommended Hotel: 1. Ramada Aeroport 7300 Cote de Liesse (514) 733-88182. HOLIDAY INN Aeroport 6500 Cote de Liesse, (514)739-3391**Final Notification**Notification Date: July 10, 2007Date/Duration of Scheduled Activity: Aug. 08, 2007, Hardware verification – 5 working daysAug. 8, 2007 – Final Inspection & Documentation & PQR – 5 working daysRelevant Documents Approved by: Yes ☒ No ☐

LUNG MEN WITNESS/HOLD POINT NOTIFICATIONFinal NotificationNotification Date: July 10, 2007Ref: VI-TPC-MS019A1-0042

Specification No.: 31113.62.3898, Rev. 3

Supplier Name: VELAN INC.

Equipment Name: STAINLESS STEEL & CARBON STEEL VALVES

Activity to be Witnessed: DOCUMENTATION & FINAL INSPECTION

Date/Duration of Scheduled Activity: X011-273070-N= 215 valves (UNIT 2)
X011-273180-N= 194 valves (UNIT 2)
X011-273200-N= 712 valves (UNIT 2)
Total= 1121 valves

Applicable Procedure Numbers/Revision: VEL-QCI-4214/ Rev.5, Operation 5. 7

(Item No.)/ID No.: SEE ATTACHED LIST

Quality Plan No./Revision: VEL-QCI-4214 Rev 5 Witness/Hold Point No.: H

Location of Activity: VELAN INC
2125 Ward Avenue
MONTREAL, QUEBEC
CANADA, H4M 1T6

Name of Local Contact: Ozzie Rodrigues QC. Manager

Phone No.: 514-748-7748 local 1187

Fax No.: 514-748-4891 email orodrigu@velanvalve.com

Recommended Airport: Pierre Elliot Trudeau International Airport-Montreal

Recommended Hotel: 1. Ramada Aeroport 7300 Cote de Liesse (514) 733-8818
2. HOLIDAY INN Aeroport 6500 Cote de Liesse, (514)739-3391

Final NotificationNotification Date: July 10, 2007

Date/Duration of Scheduled Activity: Aug. 8, 2007 (Hardware verification) / 5 working days
Aug. 8, 2007 (Final Inspection & Document review & PQC) / 5 working days

Relevant Documents Approved by: SWT/TPC Yes X No

Technical/Quality Assurance Requirements

LUNG MEN WITNESS/HOLD POINT NOTIFICATIONPreliminary NotificationNotification Date: ¹³ July 18, 2007

Ref: VI-TPC-MS019A1-0042 (REVISE)

Specification No.: 31113.62-3898-rev.3Supplier Name: VELAN INC.Equipment Name: ~~SPARE PARTS FOR PACKING RINGS & GASKETS~~Activity to be Witnessed: DOCUMENTATION & FINAL INSPECTION

Date/Duration of Scheduled

Activity: UNIT 1

UNIT 2

X011-595591-B/X011-595801-B/X011-595811-B/X011-595821-B/X011-595831-B

X011-595592-B/X011-595802-B/X011-595812-B/X011-595822-B/X011-595832-B

UNIT 1 TOTAL: 9462 UNIT 2 TOTAL: 9940TOTAL IN ALL: 19,402

Applicable Procedure

Numbers/Revision

N/A

(Item No.) ID No.:

SEE ATTACHED LIST

Quality Plan No./Revision:

N/A Witness/Hold Point No.: H

Location of Activity:

VELAN INC2125 Ward AvenueMONTREAL, QUEBECCANADA, H4M 1T6

Name of Local Contact:

Ozzie Rodrigues OC Manager

Phone No.:

514-748-7748 local 1187

Fax No.:

514-748-4891 email orodrigu@velanvalve.com

Recommended Airport:

Pierre Elliot Trudeau International Airport-Montreal

Recommended Hotel:

1. Ramada Aeroport 7300 Cote de Liesse (514) 733-88182. HOLIDAY INN Aeroport 6500 Cote de Liesse, (514) 739-3391Final NotificationNotification Date: ¹³ July 18, 2007Date/Duration of Scheduled Activity: Aug. 08, 2007, Hardware verification -- 5 working daysAug. 8, 2007 -- Final Inspection & Documentation & PQR -- 5 working days

Relevant Documents Approved by:

Yes x No _____

Technical/Quality Assurance Requirements



Stone & Webster Asia, Inc.

Ms. Barbara Alleyne
Sales Order Administrator
Velan Inc
7007 Cote de Liesse, Montreal, Quebec
Canada H4T 1G2
Fax: +1-514-748-8635
Email: balleyne@velanvalve.com
(Total pages: 1+)

March 9, 2007
JO 13016 /T2.20/MEC
SWT-VI-MS019A1-000180
Response Required: No

SUBJECT: LUNG MEN NUCLEAR POWER PROJECT UNITS 1 AND 2
CONTRACT NO. 8749111M019A1 CARBON AND ALLOY STEEL, VALVES (ASME III)
PART A - GLOBE, NEEDLE AND ANGLE VALVES & PART B - GATE VALVES
ASME GLOBE AND GATE VALVES DESIGN
REVIEW COMMENT ON UNIT 2 DESIGN REPORTS

REFERENCE: 1. VI-SWT-MS019A1-0186, dated 1/29/2007
2. GEAE-2007-0212, dated 3/5/2007
3. VI-SWT-MS019A1-0189, dated 2/27/2007
4. VI-SWT-MS019A1-0190, dated 3/8/2007
5. DNE-SWT-0702-5306-P40, dated 2/8/2007

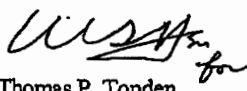
Dear Ms. Alleyne,

GE has reviewed the subject document transmitted via Reference 1 and has "RD" status as indicated in the Attachment of Reference 2 (enclosed).

Please proceed in accordance with the contract requirements.

If you have any questions regarding this letter, please contact Sean B. Tsai at 886-2-26966966 or by e-mail at sb.tsai@stoneweb.com.tw.

Sincerely yours,


Thomas P. Tonden
Project Engineering Manager

TPT: sbt1121

Enclosure: GEAE-2007-0212 (5 sheets)

cc: Mr. S. H. Liao - PM, DNE TPC (w/o)



GE Nuclear Energy

Timothy J. O'Neil
Lungmen Project Manager

GE Lungmen Project Office
1989 Little Orchard Street, M/C 780, San Jose, CA 95125-1030
voice: 408 925-1801, fax: 408 925-4257
Email: Timothy.O'Neil@ge.com

March 5, 2007

GEAE-2007-0212

Response Required? Yes ☐ No ☒

File No: 14.0800/62.3898.16

Response Requested by: N/A

Dr. Sheldon C. Chow, Manager of Taiwan Operations
Mr. Thomas P. Tonden, Engineering Manager
Stone & Webster Asia, Inc.
8th Floor Building C, No. 90
Section 1, Hsin-Tai 5th Road
Hsichih City, Taipei County, Taiwan ROC

MHI Action: ☐MHI Information: ☐Hitachi Action: ☐Hitachi Information ☐

Subject: Lungmen Project Fourth Nuclear Power Plant Units 1 and 2
Contract No. 8748611M001-1
Nuclear Steam Supply System (NSSS) and Related Systems, Equipment and Services
Return of Velan Submittal (Design Reports)

DID: N/A

Review Level: N/A

System Code: Various

- References:
1. SWT-GE-015724, dated March 1, 2007
 2. SWT-GE-015650, dated February 6, 2007

Gentlemen:

GE has completed its review of the documents submitted with Reference 2. These documents have been statused "RD" as shown in Attachment 1.

If you have any questions concerning this transmittal, please contact Brandon J. Stasieluk at 1-913-458-7759, or email to stasielukbj@bv.com.

Sincerely yours,

K. S. Hwang for

Timothy J. O'Neil

Attachment: 1. Drawing Manifest MM-09947 (4 pages)

TJO:jmt

cc: S. H. Liao, TPC DNE
Y. H. Hsu, TPC DNFP, w/o attachment
K. S. Hwang, GE Taipei

K. L. Zernickow, B&V
Project Files

REVIEW DOES NOT RELIEVE CONTRACTOR FROM
RESPONSIBILITY FOR ERRORS OR DEVIATIONS
FROM CONTRACT REQUIREMENTS.

TAIWAN POWER COMPANY
LUNGSHEN NUCLEAR UNITS 1 AND 2
B&V PROJECT 31113

B & V ENGINEERS-ARCHITECTS
INFO MGT REPORT PJ-DM-XMT-L7
ALL DATES SPECIFIED IN MM/DD/YY FORMAT

DRAWING MANIFEST
PACKET NUMBER: MM-09947
SPEC NUMBER: 62.3898.1
GEN SUBJ MATL: 62.3898.1
DIST PURPOSE: RETURN
PROCESS DATE: 03/05/07

MFR REF:
CLIENT REF:
B&V FILE NO: 62.3898.15
COMMENTS:

B&V DWG NO	MFR DWG NO/ MFR NAME	MFR SHT	REV	MFR DRAWING TITLE	STATUS/ STATUS DATE	GE VPF NUMBER
6-20001	DR-2550 VELAN		/0	CORROSION EROSION ALLOWANCES	RD 03/02/07	
6-20002	DR-2551 VELAN		/0	DESIGN REPORT B21 E22 G51 P11 P13 P18 P52 T62	RD 03/02/07	
6-20003	DR-2552 VELAN		/0	DESIGN REPORT P21 P25 P51 T31 E22 E51 G51	RD 03/02/07	
6-20004	DR-2553 VELAN		/0	DESIGN REPORT E11 T49 T22 T49 G41 G31	RD 03/02/07	
6-20005	DR-2554 VELAN		/0	DESIGN REPORT C41 G41 K11 T62 T63	RD 03/02/07	
6-20006	DR-2556 VELAN		/0	DESIGN REPORT C41 G41 T22	RD 03/02/07	
6-20007	DR-2557 VELAN		/0	DESIGN REPORT P21 P25 E22 E51 G51	RD 03/02/07	
6-20008	DR-2558 VELAN		/0	DESIGN REPORT T22 E11 T49 G41	RD 03/02/07	
6-20009	DR-2559 VELAN		/0	DESIGN REPORT E11	RD 03/02/07	
6-20010	DR-2560 VELAN		/0	DESIGN REPORT C41	RD 03/02/07	
6-20011	DR-2561 VELAN		/0	DESIGN REPORT P26	RD 03/02/07	
6-20012	DR-2562 VELAN		/0	DESIGN REPORT B21 B31 C41 T62 G31	RD 03/02/07	
6-20013	DR-2563 VELAN		/0	DESIGN REPORT C41 G31	RD 03/02/07	

B & V ENGINEERS-ARCHITECTS
INFO MGT REPORT PJ-DM-XMT-L7
ALL DATES SPECIFIED IN MM/DD/YY FORMAT

TAIWAN POWER COMPANY
LONGMEN NUCLEAR UNITS 1 AND 2
BEV PROJECT 31113

REVIEW DOES NOT RELIEVE CONTRACTOR FROM
RESPONSIBILITY FOR ERRORS OR DEVIATIONS
FROM CONTRACT REQUIREMENTS.

B&V DWG NO	MFR DWG NO/ MFR NAME	MFR SHT	REV	MFR DRAWING TITLE	STATUS/ STATUS DATE	GE VPF NUMBER
6-20014	DR-2564 VELAN		/0	DESIGN REPORT B31 T62 B21 G31	RD 03/02/07	
6-20015	DR-2565 VELAN		/0	DESIGN REPORT B21 E51 G31 N22	RD 03/02/07	
6-20016	DR-2566 VELAN		/0	DESIGN REPORT B21 E11 E51	RD 03/02/07	
6-20017	DR-2567 VELAN		/0	DESIGN REPORT E22 E51	RD 03/02/07	
6-20018	DR-2568 VELAN		/0	DESIGN REPORT E22	RD 03/02/07	
6-20019	DR-2569 VELAN		/-	DESIGN REPORT P18	RD 03/02/07	
6-20020	DR-2571 VELAN		/0	DESIGN REPORT E11	RD 03/02/07	
6-20021	DR-2573 VELAN		/0	DESIGN REPORT P54	RD 03/02/07	
6-20022	DR-2574 VELAN		/0	DESIGN REPORT G31	RD 03/02/07	
6-20023	DR-2575 VELAN		/0	DESIGN REPORT G31	RD 03/02/07	
6-20024	DR-2576 VELAN		/0	DESIGN REPORT P54	RD 03/02/07	
6-20025	DR-2577 VELAN		/0	DESIGN REPORT P54	RD 03/02/07	
6-20026	DR-2578 VELAN		/0	DESIGN REPORT E11 G31	RD 03/02/07	
6-20027	DR-2579 VELAN		/0	DESIGN REPORT E22	RD 03/02/07	
6-20028	DR-2581 VELAN		/0	DESIGN REPORT E11	RD 03/02/07	
6-20029	DR-2582 VELAN		/0	DESIGN REPORT C41	RD 03/02/07	

REVIEW DOES NOT RELIEVE CONTRACTOR FROM
RESPONSIBILITY FOR ERRORS OR DEVIATIONS
FROM CONTRACT REQUIREMENTS.

TAIWAN POWER COMPANY
LUNGMEN NUCLEAR UNITS 1 AND 2
B&V PROJECT 31113

B & V ENGINEERS-ARCHITECTS
INFO MGT REPORT PJ-DM-XMT-L7

ALL DATES SPECIFIED IN MM/DD/YY FORMAT

B&V DMG NO	MFR DMG NO/	MFR SHT	REV	MFR DRAWING TITLE	STATUS/ STATUS DATE	GE VFF NUMBER
6-20030	DR-2583	VELAN	/0	DESIGN REPORT T49	RD	03/02/07

CLIENT DISTRIBUTION	HARDCOPY		ELEC-		OTHER
	FS	HS	TRONIC		
ATTN: S.H. LIAO	0	0	0	0	ELECT DIST

TAIWAN POWER COMPANY
NUCLEAR ENGINEERING DEPARTMENT
242, ROOSEVELT ROAD, SECTION 3
TAIPEI,
TAIWAN - ROC

INTERNAL DISTRIBUTION

BRANDON STASIELUK	Q2	0	0	0	MNFST ONLY
D.H. EWALD	Q2	0	0	0	MNFST ONLY
L.F. DEBAL	Q6	0	0	0	MNFST ONLY
MIKE TZANG	Q2	0	0	0	MNFST ONLY
SHEILA SEALS/PROJECT FILE	Q2	1	0	0	

SPECIAL DISTRIBUTION

ATTN: MR. THOMAS TONDEN	0	0	0	0	ELECT DIST
-------------------------	---	---	---	---	------------

STONE & WEBSTER ASIA, INC
8TH FLOOR BUILDING C. NO. 90
SECTION 1, HSIN-TAI 5TH ROAD
HSICHIH CITY, TAIPEI COUNTY
TAIWAN ROC

REVIEW DOES NOT RELIEVE CONTRACTOR FROM
RESPONSIBILITY FOR ERRORS OR DEVIATIONS
FROM CONTRACT REQUIREMENTS.

TAIWAN POWER COMPANY
LUNGSHEN NUCLEAR UNITS 1 AND 2
REV PROJECT 31113

B & V ENGINEERS-ARCHITECTS
INFO MGT REPORT PJ-DM-XMT-L7

ALL DATES SPECIFIED IN MM/DD/YY FORMAT

DESCRIPTION OF STATUS CODES

The following status codes are used to designate the results of the Black & Veatch review of the documents submitted by manufacturers.

RC - Returned for Correction
Indicates the document is deficient and corrections shall be made before work is to proceed. Revise and resubmit the document.

EN - Exceptions Noted
Indicates there are noted exceptions on the document which must be revised by the manufacturer. Work may proceed in accordance with the comments. Revise and resubmit the document.

NE - No Exceptions Noted
Indicates no specific objections to the document. Work may proceed. Submit only future revisions of the document.

RD - Received for Distribution
Acknowledges the document was received and distributed without review. Submit any future revisions of the document.

HO - Hold
Indicates an intentional interruption of the review process for a particular document. The final status of the document will be determined at a later date.

SS - Superseded
Indicates a different document replaces a previously submitted document. This status DOES NOT pertain to revisions of the same document. No action required.

VO - Void
Indicates a document is no longer applicable to the project and IS NOT being replaced by another document. No action required.

PACKING LIST
SHIPMENT 5

**Velan Inc., 7007 Cote de Liesse,
Montreal, Quebec. Canada. H4T 1G2**



DATE: AUGUST 3, 2007

CONSIGNEE:

Taiwan Power Company, Department of
Nuclear and Fossil Power Projects
39 Ho-Ping East Road, Section 1
Taipei, Taiwan, R.O.C.

SHIPPING MARKS:

Cargo Description: Valves
Contract No: 874911M019A1
Port of Destination: Keelung Taiwan
Consignee: Taiwan Power Company,
Department of Nuclear and
Fossil Power Projects
Box No.: 01 (and up consecutively)
Gross Weight: Kgs.
Net Weight: Kgs.
Caution Marks:
Dimensions:
Consignor: Velan Inc.,
7007 Cote de Liesse,
Montreal, Quebec, Canada. H4T 1G2

B. Alleyne, Export Contract Administrator

PLT	BOX #	TRACKING NO	VELAN SALES NO	CUST NO	CUST PO LINE	POS	QTY	ITEM	TAG NO	DIMENSIONS L x W x H CM	VOL M ³	GROSS WT KGS	NET WT KGS	C'TRY ORIGIN
11	5-89	A19509-00	273070	874911M019A1	B07-03	41	4	B05-2064B-02MP	2T22-BV-0509B	122 x 82 x 93	0.93	421	321	CA
11	-	-	-	-	-	-	-	-	2T22-BV-0509C	-	-	-	-	CA
11	-	-	-	-	-	-	-	-	2T22-BV-0510B	-	-	-	-	CA
11	-	-	-	-	-	-	-	-	2T22-BV-0510C	-	-	-	-	CA
11	-	-	-	-	B07-04	46	39	W05-2064B-02MP	2P21-BV-0003B	-	-	-	-	CA
11	-	-	-	-	-	-	-	-	2P21-BV-0003C	-	-	-	-	CA
11	-	-	-	-	-	-	-	-	2P21-BV-0005A2	-	-	-	-	CA
11	-	-	-	-	-	-	-	-	2P21-BV-0005A3	-	-	-	-	CA
11	-	-	-	-	-	-	-	-	2P21-BV-0005B1	-	-	-	-	CA
11	-	-	-	-	-	-	-	-	2P21-BV-0005B2	-	-	-	-	CA
11	-	-	-	-	-	-	-	-	2P21-BV-0005B3	-	-	-	-	CA
11	-	-	-	-	-	-	-	-	2P21-BV-0005C1	-	-	-	-	CA
11	-	-	-	-	-	-	-	-	2P21-BV-0005C2	-	-	-	-	CA
11	-	-	-	-	-	-	-	-	2P21-BV-0015A	-	-	-	-	CA
11	-	-	-	-	-	-	-	-	2P21-BV-0015C	-	-	-	-	CA
11	-	-	-	-	-	-	-	-	2P21-BV-0018A	-	-	-	-	CA
11	-	-	-	-	-	-	-	-	2P21-BV-0018C	-	-	-	-	CA
11	-	-	-	-	-	-	-	-	2P21-BV-0027B	-	-	-	-	CA

PLT	BOX #	TRACKING NO	VELAN SALES NO	CUST PO	CUST PO LINE	POS	QTY	ITEM	TAG NO	DIMENSIONS L x W x H CM	VOL M ³	GROSS WT KGS	NET WT KGS	C'TRY ORIGIN
11	-	-	-	-	-	-	-	-	2P21-BV-0115C	-	-	-	-	CA
11	-	-	-	-	-	-	-	-	2P21-BV-0501A1	-	-	-	-	CA
11	-	-	-	-	-	-	-	-	2P21-BV-0501A2	-	-	-	-	CA
11	-	-	-	-	-	-	-	-	2P21-BV-0502A2	-	-	-	-	CA
11	-	-	-	-	-	-	-	-	2P21-BV-0502B2	-	-	-	-	CA
11	-	-	-	-	-	-	-	-	2P21-BV-0502C1	-	-	-	-	CA
11	-	-	-	-	-	-	-	-	2P21-BV-0502C2	-	-	-	-	CA
11	-	-	-	-	-	-	-	-	2P21-BV-0503A	-	-	-	-	CA
11	-	-	-	-	-	-	-	-	2P21-BV-0503B	-	-	-	-	CA
11	-	-	-	-	-	-	-	-	2P21-BV-0503C	-	-	-	-	CA
11	-	-	-	-	-	-	-	-	2P21-BV-0506A1	-	-	-	-	CA
11	-	-	-	-	-	-	-	-	2P21-BV-0510B2	-	-	-	-	CA
11	-	-	-	-	-	-	-	-	2P21-BV-0519A	-	-	-	-	CA
11	-	-	-	-	-	-	-	-	2P21-BV-0534B2	-	-	-	-	CA
11	-	-	-	-	-	-	-	-	2P21-BV-0534C2	-	-	-	-	CA
11	-	-	-	-	-	-	-	-	2P21-BV-0590B	-	-	-	-	CA
11	-	-	-	-	-	-	-	-	2P21-BV-0590C	-	-	-	-	CA
11	-	-	-	-	-	-	-	-	2P21-BV-0624C	-	-	-	-	CA
11	-	-	-	-	-	-	-	-	2P21-BV-0625A1	-	-	-	-	CA
11	-	-	-	-	-	-	-	-	2P21-BV-0625A2	-	-	-	-	CA
11	-	-	-	-	-	-	-	-	2P21-BV-0625B2	-	-	-	-	CA
11	-	-	-	-	-	-	-	-	2P21-BV-0625C1	-	-	-	-	CA
11	-	-	-	-	-	-	-	-	2P21-BV-0625C2	-	-	-	-	CA
11	-	-	-	-	-	-	-	-	2P21-BV-0632A	-	-	-	-	CA
11	-	-	-	-	-	-	-	-	2P21-BV-0632C	-	-	-	-	CA
11	-	-	-	-	B08-01	51	2	B05-2064B-14MP	2C41-BV-0501	-	-	-	-	CA
11	-	-	-	-	-	-	-	-	2C41-BV-0513	-	-	-	-	CA
11	-	-	-	-	B07-3B	101	3	B05-2064B-02MP	2T22-BV-0513B	-	-	-	-	CA
11	-	-	-	-	-	-	-	-	2T22-BV-0513C	-	-	-	-	CA
11	-	-	-	-	-	-	-	-	2T22-BV-0514C	-	-	-	-	CA
11	5-90	A19510-00	273070	874911M019A1	B07-04	46	48	W05-2064B-02MP	2P21-BV-0005A1	122 x 82 x 93	0.93	421	321	CA
11	-	-	-	-	-	-	-	-	2P21-BV-0005C3	-	-	-	-	CA
11	-	-	-	-	-	-	-	-	2P21-BV-0018B	-	-	-	-	CA
11	-	-	-	-	-	-	-	-	2P21-BV-0027A	-	-	-	-	CA
11	-	-	-	-	-	-	-	-	2P21-BV-0027C	-	-	-	-	CA
11	-	-	-	-	-	-	-	-	2P21-BV-0030B	-	-	-	-	CA
11	-	-	-	-	-	-	-	-	2P21-BV-0115B	-	-	-	-	CA
11	-	-	-	-	-	-	-	-	2P21-BV-0501B2	-	-	-	-	CA
11	-	-	-	-	-	-	-	-	2P21-BV-0501C2	-	-	-	-	CA
11	-	-	-	-	-	-	-	-	2P21-BV-0502B1	-	-	-	-	CA
11	-	-	-	-	-	-	-	-	2P21-BV-0506B1	-	-	-	-	CA

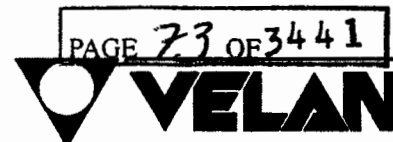
PLT	BOX #	TRACKING NO	VELAN SALES NO	CUST PO	CUST PO LINE	POS	QTY	ITEM	TAG NO	DIMENSIONS L x W x H CM	VOL M ³	GROSS WT KGS	NET WT KGS	C'TRY ORIGIN
11	-	-	-	-	-	-	-	-	2P21-BV-0506B3	-	-	-	-	CA
11	-	-	-	-	-	-	-	-	2P21-BV-0506C2	-	-	-	-	CA
11	-	-	-	-	-	-	-	-	2P21-BV-0506C3	-	-	-	-	CA
11	-	-	-	-	-	-	-	-	2P21-BV-0510A1	-	-	-	-	CA
11	-	-	-	-	-	-	-	-	2P21-BV-0510B1	-	-	-	-	CA
11	-	-	-	-	-	-	-	-	2P21-BV-0518C	-	-	-	-	CA
11	-	-	-	-	-	-	-	-	2P21-BV-0519B	-	-	-	-	CA
11	-	-	-	-	-	-	-	-	2P21-BV-0534A1	-	-	-	-	CA
11	-	-	-	-	-	-	-	-	2P21-BV-0534B1	-	-	-	-	CA
11	-	-	-	-	-	-	-	-	2P21-BV-0534C1	-	-	-	-	CA
11	-	-	-	-	-	-	-	-	2P21-BV-0536A	-	-	-	-	CA
11	-	-	-	-	-	-	-	-	2P21-BV-0536B	-	-	-	-	CA
11	-	-	-	-	-	-	-	-	2P21-BV-0587C	-	-	-	-	CA
11	-	-	-	-	-	-	-	-	2P21-BV-0616A	-	-	-	-	CA
11	-	-	-	-	-	-	-	-	2P21-BV-0624A	-	-	-	-	CA
11	-	-	-	-	-	-	-	-	2P21-BV-0625B1	-	-	-	-	CA
11	-	-	-	-	-	-	-	-	2P21-BV-0632B	-	-	-	-	CA
11	-	-	-	-	-	-	-	-	2P21-BV-0638A	-	-	-	-	CA
11	-	-	-	-	-	-	-	-	2P21-BV-0638B	-	-	-	-	CA
11	-	-	-	-	-	-	-	-	2P21-BV-0638C	-	-	-	-	CA
11	-	-	-	-	-	-	-	-	2P21-BV-0663A	-	-	-	-	CA
11	-	-	-	-	-	-	-	-	2P25-BV-0500A1	-	-	-	-	CA
11	-	-	-	-	-	-	-	-	2P25-BV-0500A2	-	-	-	-	CA
11	-	-	-	-	-	-	-	-	2P25-BV-0502A	-	-	-	-	CA
11	-	-	-	-	-	-	-	-	2P25-BV-0612	-	-	-	-	CA
11	-	-	-	-	-	-	-	-	2P25-BV-0528A	-	-	-	-	CA
11	-	-	-	-	-	-	-	-	2P25-BV-0552B	-	-	-	-	CA
11	-	-	-	-	-	-	-	-	2P25-BV-0554B	-	-	-	-	CA
11	-	-	-	-	-	-	-	-	2P25-BV-0554C	-	-	-	-	CA
11	-	-	-	-	-	-	-	-	2P25-BV-0572B	-	-	-	-	CA
11	-	-	-	-	-	-	-	-	2P25-BV-0573A	-	-	-	-	CA
11	-	-	-	-	-	-	-	-	2P25-BV-0573B	-	-	-	-	CA
11	-	-	-	-	-	-	-	-	2P25-BV-0576A	-	-	-	-	CA
11	-	-	-	-	-	-	-	-	2P25-BV-0577A	-	-	-	-	CA
11	-	-	-	-	-	-	-	-	2P25-BV-0579A	-	-	-	-	CA
11	-	-	-	-	-	-	-	-	2P25-BV-0614	-	-	-	-	CA
11	-	-	-	-	-	-	-	-	2P25-BV-0616	-	-	-	-	CA
11	5-91	A19511-00	273070	8749111M019A1	B07-04	46	48	W05-2064B-02MP	2P21-BV-0501B1	122 x 82 x 93	0.93	421	321	CA
11	-	-	-	-	-	-	-	-	2P21-BV-0502A1	-	-	-	-	CA
11	-	-	-	-	-	-	-	-	2P21-BV-0510A2	-	-	-	-	CA
11	-	-	-	-	-	-	-	-	2P21-BV-0586A	-	-	-	-	CA

PLT	BOX #	TRACKING NO	VELAN SALES NO	CUST PO	CUST PO LINE	POS	QTY	ITEM	TAG NO	DIMENSIONS L x W x H CM	VOL M ³	GROSS WT KGS	NET WT KGS	C-TRY ORIGIN
11	-	-	-	-	-	-	-	-	2P21-BV-0711B	-	-	-	-	CA
11	-	-	-	-	-	-	-	-	2P21-BV-0712A	-	-	-	-	CA
11	-	-	-	-	-	-	-	-	2P21-BV-0712B	-	-	-	-	CA
11	-	-	-	-	-	-	-	-	2P21-BV-0740A	-	-	-	-	CA
11	-	-	-	-	-	-	-	-	2P21-BV-0740B	-	-	-	-	CA
11	-	-	-	-	-	-	-	-	2P21-BV-1505A	-	-	-	-	CA
11	-	-	-	-	-	-	-	-	2P21-BV-1506A	-	-	-	-	CA
11	-	-	-	-	-	-	-	-	2G51-BV-0704	-	-	-	-	CA
11	-	-	-	-	-	-	-	-	2G51-BV-0705	-	-	-	-	CA
11	-	-	-	-	-	-	-	-	2P21-BV-1505B	-	-	-	-	CA
11	5-113	A19566-00	273210	8749111M019A1	A23-03	56	2	B05-3077T-02MP	2G31-BV-0559	122 x 82 x 93	0.93	274	174	CA
11	-	-	-	-	-	-	-	-	2G31-BV-0563	-	-	-	-	CA
11	-	-	-	-	-	-	-	-	2G31-BV-0033	-	-	-	-	CA
11	-	-	-	-	-	-	-	-	2G31-BV-0034	-	-	-	-	CA
11	-	-	-	-	-	-	-	-	2G31-BV-0035	-	-	-	-	CA
11	-	-	-	-	-	-	-	-	2G31-BV-0037A	-	-	-	-	CA
11	-	-	-	-	-	-	-	-	2G31-BV-0037B	-	-	-	-	CA
11	-	-	-	-	-	-	-	-	2G31-BV-0039A	-	-	-	-	CA
11	-	-	-	-	-	-	-	-	2G31-BV-0039B	-	-	-	-	CA
11	-	-	-	-	-	-	-	-	2G31-BV-0044	-	-	-	-	CA
11	-	-	-	-	-	-	-	-	2G31-BV-0045	-	-	-	-	CA
11	-	-	-	-	-	-	-	-	2G31-BV-0047	-	-	-	-	CA
11	-	-	-	-	-	-	-	-	2G31-BV-0538	-	-	-	-	CA
11	5-114	A19567-00	273210	8749111M019A1	A23-03	56	26	B05-3077T-02MP	2G31-BV-0505	122 x 82 x 93	0.93	300	200	CA
11	-	-	-	-	-	-	-	-	2G31-BV-0507	-	-	-	-	CA
11	-	-	-	-	-	-	-	-	2G31-BV-0509	-	-	-	-	CA
11	-	-	-	-	-	-	-	-	2G31-BV-0511	-	-	-	-	CA
11	-	-	-	-	-	-	-	-	2G31-BV-0513	-	-	-	-	CA
11	-	-	-	-	-	-	-	-	2G31-BV-0515	-	-	-	-	CA
11	-	-	-	-	-	-	-	-	2G31-BV-0517A	-	-	-	-	CA
11	-	-	-	-	-	-	-	-	2G31-BV-0517B	-	-	-	-	CA
11	-	-	-	-	-	-	-	-	2G31-BV-0519A	-	-	-	-	CA
11	-	-	-	-	-	-	-	-	2G31-BV-0519B	-	-	-	-	CA
11	-	-	-	-	-	-	-	-	2G31-BV-0521A	-	-	-	-	CA
11	-	-	-	-	-	-	-	-	2G31-BV-0521B	-	-	-	-	CA
11	-	-	-	-	-	-	-	-	2G31-BV-0523A	-	-	-	-	CA
11	-	-	-	-	-	-	-	-	2G31-BV-0523B	-	-	-	-	CA
11	-	-	-	-	-	-	-	-	2G31-BV-0527A	-	-	-	-	CA
11	-	-	-	-	-	-	-	-	2G31-BV-0527B	-	-	-	-	CA
11	-	-	-	-	-	-	-	-	2G31-BV-0542	-	-	-	-	CA
11	-	-	-	-	-	-	-	-	2G31-BV-0546	-	-	-	-	CA

PLT	BOX #	TRACKING NO	VELAN SALES NO	CUST PO	CUST PO LINE	POS	QTY	ITEM	TAG NO	DIMENSIONS L x W x H CM	VOL M ³	GROSS WT KGS	NET WT KGS	C-TRY ORIGIN
11	-	-	-	-	-	-	-	-	2G31-BV-0548	-	-	-	-	CA
11	-	-	-	-	-	-	-	-	2G31-BV-0553	-	-	-	-	CA
11	-	-	-	-	-	-	-	-	2G31-BV-0555	-	-	-	-	CA
11	-	-	-	-	-	-	-	-	2G31-BV-0557	-	-	-	-	CA
11	-	-	-	-	-	-	-	-	2G31-BV-0561	-	-	-	-	CA
11	-	-	-	-	-	-	-	-	2G31-BV-0568	-	-	-	-	CA
11	-	-	-	-	-	-	-	-	2G31-BV-0580	-	-	-	-	CA
11	-	-	-	-	-	-	-	-	2G31-BV-0581	-	-	-	-	CA
26 CRATES										TOTALS:				
										1379 PCS.				
										20.33				
										8991				
										6861				

☒ 2125 Ward Avenue
Montreal, Quebec
Canada H4M 1T6

☐ 550 McArthur Ave.
Montreal, Quebec
Canada H4T 1X8



CERTIFICATE OF COMPLIANCE

DATA PACKAGE NO.: 061137

CUSTOMER: TAIWAN POWER COMPANY ORDER NO.: 8749111M019A1

VELAN ORDER: X011-273070-N POS.: 46 ITEM: B07-04 QTY: 183

FIGURE NO.: W05-2064B-02MP DESCRIPTION: 1" CL.600 BOLTED BONNET FULL BORE GATE VALVE

DESIGN SPEC.: 31113.62.3898, REV.03 DWG. NO.: X011-273070-N04A Rev.: 2

CODE EDITION: 1989 EDITION, NO ADDENDA CODE CLASS: 3 CODE CASE: N/A

TAG NO.: SEE ATTACHED LIST.

QC CHECK LIST- DOCUMENTATION / NDE								
COMPONENT	S/N	H/C	MATERIAL SPEC.	CMTR	PT	MT	UT	RT
BODY	N/A	MMPLW1	SA-105, CS	X				
BONNET	N/A	MMOJI9	SA-105, CS	X				
WEDGE	N/A	90J, 29J, 37L, 96K, 84K, 81J	NOREM-02	X				
STUD (BODY/BONNET)	N/A	K355, BKG	SA-193, GR B7	C of C				
NUT (BODY/BONNET)	N/A	K358, ASF, 3	SA-194, GR 7	C of C				
HARDFACING (SEAT)	N/A	Z032110, Z032134	NOREM-02/02A	X	X			
STEM	N/A	N/A	A276, 316B	N/A			X	
SEAT SEAL WELDS	N/A	131468, 727182, 065706	SFA 5.9, ER309L	X	X			

THE ABOVE VALVE(S) WERE MANUFACTURED IN ACCORDANCE WITH (☒)

- | | | | |
|---|--|--------------|--------------|
| 1. ☒ CERTIFICATE OF AUTHORIZATION | N-2797-1 | EXPIRY DATE: | APR 20, 2007 |
| 2. ☒ CORPORATE QAM REVISION | 11 | DATED: | JAN 31, 2007 |
| 3. ☒ 10CFR 50 APPENDIX B | 7. ☐ VEL-QC-155, REV. | DATED: | N/A |
| 4. ☒ 10CFR PART 21. | 8. ☐ VEL-QCI-1123, REV. | DATED: | N/A |
| 5. ☒ ASME/ANSI B16.34 | 9. ☒ VEL-QC-900, REV. 14 | DATED: | APR 3, 2006 |
| 6. ☐ PUMP & VALVE CODE | 10. ☒ VEL-QCI-2869, REV. 2 | DATED: | APR 8, 2003 |

We hereby certify that all valve(s) described above are in compliance with purchase order and specification requirements. The test reports represent the actual attributes of the items furnished and test results are in full compliance with applicable specification and purchase order requirements. NDE indicated has been performed by personnel qualified in accordance with contract, Code and Design Specification requirements.

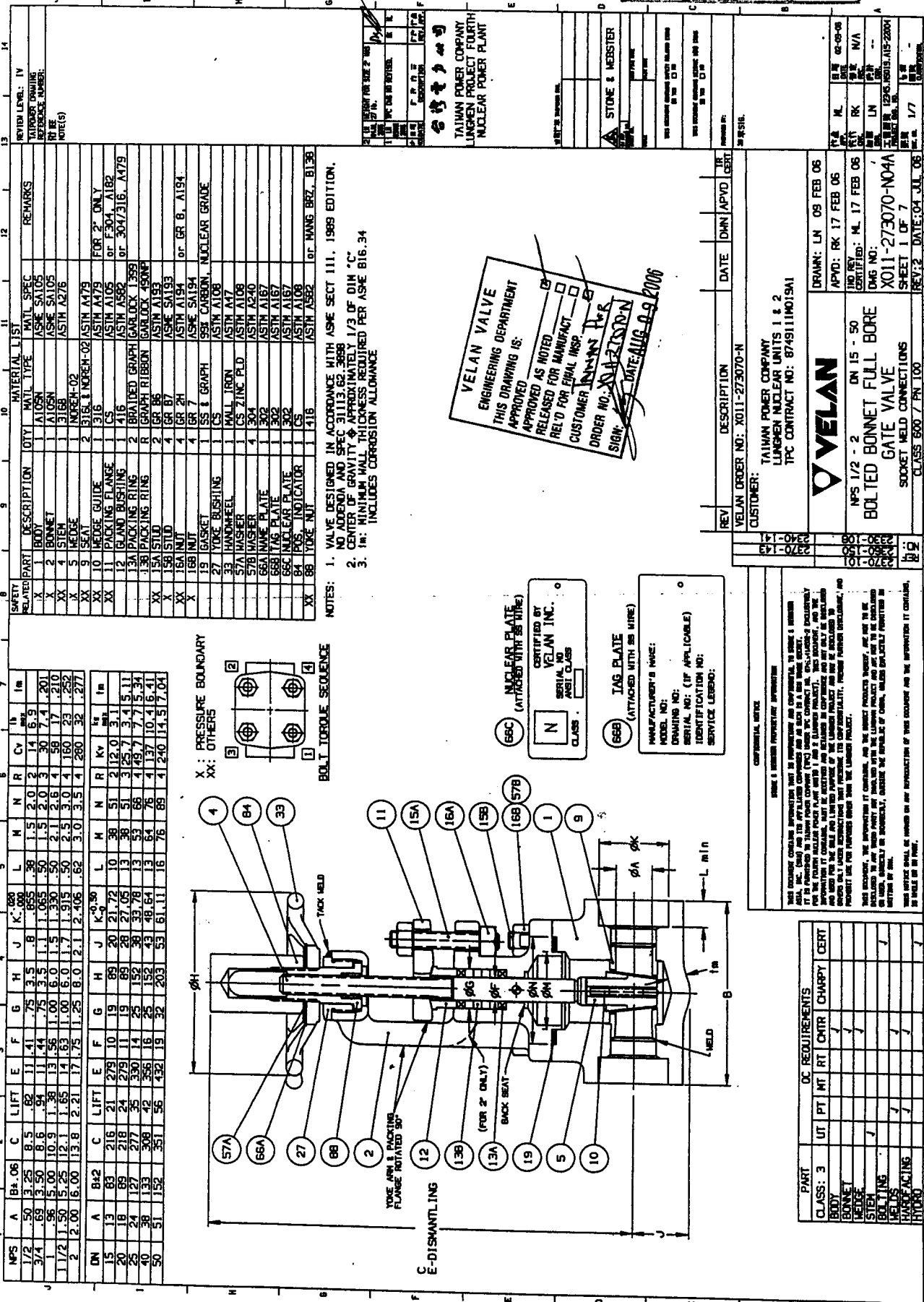
NOTES:

OZZIE RODRIGUES
 Q.C. DOCUMENTATION MANAGER

APR 13 2007

DATE

PAGE 1465 OF 3441



VELAN VALVE
ENGINEERING DEPARTMENT
THIS DRAWING IS:
APPROVED ☒
RELEASED FOR MANUFACT ☐
REL'D FOR FINAL INSP. ☐
CUSTOMER VELAN PVT ☒
ORDER NO. VEL 2300-N
SIGN: [Signature] DATE: 18 AUG 09 2006

PAGE 1 OF 3441

QUALITY RECORD PACKAGE INDEX
LUNG MEN NUCLEAR POWER PROJECT UNITS 1, 2
CARBON AND ALLOY STEEL VALVES (ASME III)

Page No. 1 of 1

TPC Order No.	Velan Order No..	Item	Remarks
8749111M019A1	VARIOUS	VARIOUS	VEL 005 (UNIT 2)

Volume #	File Sec. No.	TYPE OF RECORD	Page No.
		QA Record Index	1
# 1	01	Buyer's Product Quality Certificate (PQC)	2 - 11
# 1	02	Supplier's Certificate of Compliance (C of C)	12 - 179
# 1 - 2	03	ASME Code Design Reports	180 - 1203
# 3	04	ASME Code Data Reports	1204 - 1436
# 3	05	As Built Outline and Assembly Drawings	1437 - 1535
# 3	06	Weld Procedures	1536 - 1574
# 3	07	Hardface Procedures	1575 - 1597
# 3	08	Major Weld Repair Records (as applicable)	1598
# 3	09	NDE Records	1599 - 1815
# 4	10	Hydrostatic and Leak Test Report	1816 - 1983
# 4 - 5	11	Visual, Dimensional and Wall Thickness Inspection Record	1984 - 2653
# 5	12	Ferrite Test Results for Stainless Steel Castings and Weld Filler Materials (if applicable)	2654
# 5	13	IGA & Sensitization Test Results for Stainless Steel (For IGA results, see CMTR Section 21)	2655 - 2782, 2782A - 2782AX
# 5	14	Radiograph Review Records	2783 - 2785
# 5	15	Radiographs	2786
# 5	16	Buyer's Deviation Disposition Request and Supplier's Related Non Conformance Report	2787 - 2794
# 5	17	CMTR Code and Code Case N62 Parts	2795
# 5	18	CMTR Weld Filler Materials	2796 - 2928
# 6	19	CMTR Hardface Materials	2929 - 3017
# 6	20	Heat Treat Records (as applicable)	3018
# 6	21	Mill Certified Test (Material Test Report)	3019 - 3323
# 6	22	List of Safety Related Valve Parts and Components Procured from Non NQA1 Suppliers is Tabulated on Each Project Drawing Material List as XX (No 5 above)	3324
# 6	23	Operating and Maintenance Manual	3325 - 3397
# 6	24	The Procedure for Procurement of Safety Related Parts and Components from Non NQA1 Suppliers	3398 - 3404
# 6	25	Inspection Personnel Qualifications	3405 - 3418
# 6	26	Welder Qualifications	3419 - 3441

Shy-Kwee Lo
 TFC/DAS
 Aug. 13, 2007

Total Pages = 3491

PAGE 3 OF 3441



**LUNG MEN PROJECT
RELEASE FOR SHIPMENT**

Product Quality Certificate

CLIENT: Taiwan Power Company	TPC CONTRACT NO. 8749111M019A1	SHIPMENT NO. VEL 005 (UNIT 2)
TPC SPECIFICATION NO. 31113.623898	REV. 03	ADDENDA 5
PRODUCT DESCRIPTION CARBON AND ALLOY STEEL VALVES		
<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> (SEE ATTACHED LIST)	<u>QUANTITY</u> (SEE ATTACHED LIST)	<u>ITEM NO.</u> (SEE ATTACHED LIST)
		<u>QUANTITY</u> (SEE ATTACHED LIST)
<u>NOTE:</u> PARTIAL SHIPMENT, NON-CODE AND CODE VALVES.		
ALL SUPPORTING DOCUMENTATION REQUIRED BY THE ABOVE REFERENCED DOCUMENTS HAVE BEEN ISSUED TO TPC AUTHORIZED REPRESENTATIVE.		
SIGNED <i>[Signature]</i>	DATE <i>August 13 / 07</i>	
TITLE Q.C. DOCUMENTATION MANAGER	SUPPLIER VELAN INC.	
<u>TPC REPRESENTATIVE CERTIFICATION¹</u>		
THIS IS TO CERTIFY THAT EVIDENCE SUPPORTING THE ABOVE SUPPLIER'S CERTIFICATION STATEMENT HAS BEEN REVIEWED AND THAT NO DEVIATIONS FROM QUALITY ASSURANCE REQUIREMENTS HAVE BEEN FOUND UNLESS NOTED BELOW."		
SIGNED <i>Shyh-Kwei Lo</i>	DATE <i>Aug. 13, 2007</i>	
TITLE PROCUREMENT SURVEILLANCE REPRESENTATIVE <i>TPC/DMS QA Engineer</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.

PAGE 4 OF 3441

SUPPLIER'S CERTIFICATION**ITEM NO.**

X011-273080-K		
B07-06 (21)- S/N: 071103	4 PC	2G51-BV-0500,2G51-0505,2G51-BV-0514,2G51-0520
B08-03 (26)- S/N: 071091	3 PC	2G41-BV-0514A,2G41-BV-0514B,2G41-BV-0522
B07-5A (61)- S/N: 071100	4 PC	2G41-BV-0547, 2G41-BV-0548, 2G41-BV-0549, 2G41-BV-0551
B07-6A (66)- S/N: 071101	14 PC	2P21-BV-0038A,2P21-BV-0038B,2P21-BV-0042A,2P21-BV-0042B,2P21-BV-0664A, 2P21-BV-0665A,2P21-BV-0665B,2P21-BV-0527A,2P21-BV-0527B,2P21-BV-0528A, 2P21-BV-0528B,2G51-BV-0519,2G51-BV-0525,2G51-BV-0517
TOTAL:	25	
X011-273190-K		
A24-05 (46)- S/N: 071129	2 PC	2G31-BV-0535A,2G31-BV-0535B
A25-01 (61)- S/N: 071109	5 PC	2G31-BV-0534A*,2G31-BV-0538B*,2G31-BV-0589A*,2G31-BV-0589B*,2G21-BV-0590B*
A08-6A (106)- S/N: 071128	1 PC	2P54-BV-0048
TOTAL:	8	
X011-273210-K		
A06-07 (11)- S/N: 071093	7 PC	2G51-BV-0015,2G51-BV-0512, 2G51-BV-0513,2G51-BV-0700 2G51-BV-0701,2G51-BV-0702,2G51-BV-0703
A18-07 (31)-S/N: 071097	110PC	2G31-BV-0040,2G31-BV-0041,2G31-BV-0042A,2G31-BV-0042B,2G31-BV-0043A, 2G31-BV-0043B, 2G31-BV-0503,2G31-BV-0525A*,2G31-BV-0525B*,2G31-BV-0526A, 2G31-BV-0526B,2G31-BV-0533A,2G31-BV-0533B,2G31-BV-0537,2G31-BV-0541, 2G31-BV-0545,2G31-BV-0551,2G31-BV-0567,2G31-BV-0706*,2G31-BV-0707, 2G31-BV-0708,2G31-BV-0709,2G31-BV-0714A,2G31-BV-0714B,2G31-BV-0715A, 2G31-BV-0715B,2G31-BV-0716A,2G31-BV-0716B, 2G31-BV-0717A,2G31-BV-0717B, 2G31-BV-0718A,2G31-BV-0718B,2G31-BV-0719A,2G31-BV-0719B,2G31-BV-0720, 2G31-BV-0721,2G31-BV-0722,2G31-BV-0723,2G31-BV-0724A,2G31-BV-0724B, 2G31-BV-0725A,2G31-BV-0725B, 2G31-BV-0726A,2G31-BV-0726B,2G31-BV-0727A, 2G31-BV-0727B,2G31-BV-0728,2G31-BV-0729,2G31-BV-0730,2G31-BV-0731, 2G31-BV-0742,2G31-BV-0743,2G31-BV-0744,2G31-BV-0745, 2G31-BV-0746A,2G31-BV-0746B, 2G31-BV-0747A,2G31-BV-0747B,2G31-BV-0748A,2G31-BV-0748B,2G31-BV-0749A, 2G31-BV-0749B,2G31-BV-0752,2G31-BV-0753,2G31-BV-0754,2G31-BV-0755, 2G31-BV-0596*,2G31-BV-0597, 2G31-BV-0598*,2G31-BV-0599,2G31-BV-0602*, 2G31-BV-0603,2G31-BV-1049A,2G31-BV-1049B,2G31-BV-1504A*,2G31-BV-1504B*, 2G31-BV-1505A,2G31-BV-1505B, 2G31-BV-1701A,2G31-BV-1701B,2G31-BV-1702A, 2G31-BV-1702B,2G31-BV-1703A,2G31-BV-1703B,2G31-BV-1704A,2G31-BV-1704B, 2G31-BV-1705A,1G31-BV-1705B,2G31-BV-1706A,2G31-BV-1706B, 2G31-BV-1707A, 2G31-BV-1707B,2G31-BV-1708A,2G31-BV-1708B,2G31-BV-1709A,2G31-BV-1709B, 2G31-BV-1710A,2G31-BV-1710B,2G31-BV-1711A,2G31-BV-1711B,2G31-BV-1712A, 2G31-BV-1712B, 2G31-BV-1713A,2G31-BV-1713B,2G31-BV-1714A,2G31-BV-1714B, 2G31-BV-1723A,2G31-BV-1723B,2G31-BV-1723B,2G31-BV-1724A,2G31-BV-1724B
A22-07 (41)- S/N: 071134	39 PC	2G31-BV-0504,2G31-BV-0506,2G31-BV-0508,2G31-BV-0510,2G31-BV-0512, 2G31-BV-0514,2G31-BV-0516,2G31-BV-0518A,2G31-BV-0518B,2G31-BV-0520A, 2G31-BV-0520B,2G31-BV-0522A,2G31-BV-0522B,2G31-BV-0524A,2G31-BV-0524B, 2G31-BV-0528A,2G31-BV-0528B,2G31-BV-0529,2G31-BV-0530A,2G31-BV-0530B, 2G31-BV-0531A,2G31-BV-0531B,2G31-BV-0539,2G31-BV-0543,2G31-BV-0547, 2G31-BV-0549,2G31-BV-0552,2G31-BV-0554, 2G31-BV-0556,2G31-BV-0558, 2G31-BV-0560,2G31-BV-0562,2G31-BV-0564,2G31-BV-0565,2G31-BV-0569, 2G31-BV-1506A*,2G31-BV-1506B*,2G31-BV-1521B*,2G31-1522B 2G41-BV-0516A, 2G41-BV-0516B
A22-08 (46)- S/N: 071133	2 PC	2G31-BV-1507A,2G31-BV-1507B
A22-09 (51)- S/N: 071110	2 PC	2G31-BV-1521A*,2G31-BV-1522A
A23-03 (56)- S/N: 071111 (...CONTIDUE)	28 PC	2G31-BV-0505*, 2G31-BV-0507*, 2G31-BV-0509*, 2G31-BV-0511*,2G31-BV-0513*, 2G31-BV-0515*, 2G31-BV-0517A*, 2G31-BV-0517B*,2G31-BV-0519A*, 2G31-BV-0519B*, 2G31-BV-0521A*,2G31-BV-0521B*, 2G31-BV-0523A*, 2G31-BV-0523B*, 2G31-BV-0527A*, 2G31-BV-0527B*, 2G31-BV-0542*, 2G31-BV-0546*, 2G-31BV-0548*, 2G31-BV-0553*, 2G31-BV-0555*, 2G31-BV-0557*, 2G31-BV-0559*, 2G31-BV-0561*, 2G31-BV-0563*, 2G31-BV-0568*, 2G31-BV-0580*, 2G31-BV-0581*
TOTAL:	188	

PAGE TOTAL: 221

(PAGE 1 OF 2)

PAGE 5 OF 3441

(PAGE 2 OF 2)		
A27-05 (61)- S/N: 071095	10 PC	2G31-BV-0033, 2G31-BV-0034*, 2G31-BV-0035, 2G31-BV-0037A2G31-BV-0037B, 2G31-BV-0039A, 2G31-BV-0039B, 2G31-BV-0044*, 2G31-BV-0045, 2G31-BV-0047
A18-7A (76)- S/N: 071127	2 PC	2G31-BV-0600*, 2G31-BV-0601
A06-7A (91)- S/N: 071112	16 PC	2P21-BV-0525A, 2P21-BV-0525B, 2P21-BV-0529A, 2P21-BV0529B, 2P21-BV-0711A, 2P21-BV-0711B, 2P21-BV-0712A, 2P21-BV-0712B, 2P21-BV-0740A, 2P21-BV-0740B, 2P21-BV-1505A, 2P21-BV-1506A, 2G51-BV-0521, 2G51-BV-0522, 2G51-BV-0523, 2G51-BV-0524
A09-6A (96)- S/N: 071113	4 PC	2P21-BV-0041A, 2P21-BV-0041B, 2P21-BV-0526A, 2P21-BV-0526B
A06-7B (106)- S/N: 071094	2 PC	2G51-BV-0704, 2G51-BV-0705
A06-7C (111)- S/N: 071114	1 PC	2G51-BV-0518
A23-3A (116)- S/N: 071115	1 PC	2G31-BV-0538*
A06-7D (121)- S/N: 071116	1 PC	2P21-BV-1505B
PAGE TOTAL=	37	

TOTAL = 258

PAGE 62 OF 3441

ITEM NO.(Pos), S/N	QUANTITY	ID NUMBER
Velan Order No. X011-273070-N		
B03-01 (11), S/N: 071104	3	2P21-BV-0139A, 2P21-BV-0139B, 2P21-BV-0139C.
B07-03 (41), S/N: 071105	4	2T22-BV-0509B, 2T22-BV-0509C, 2T22-BV-0510B, 2T22-BV-0510C.
B07-3B (101), S/N : 071136	3	2T22-BV-0513B, 2T22-BV-0513C, 2T22-BV-0514C.
B07-04 (46), S/N : 061137	183	2P21-BV-0003A, 2P21-BV-0003B, 2P21-BV-0003C, 2P21-BV-0005A1, 2P21-BV-0005A2, 2P21-BV-0005A3, 2P21-BV-0005B1, 2P21-BV-0005B2, 2P21-BV-0005B3, 2P21-BV-0005C1, 2P21-BV-0005C2, 2P21-BV-0005C3, 2P21-BV-0015A, 2P21-BV-0015B, 2P21-BV-0015C, 2P21-BV-0018A, 2P21-BV-0018B, 2P21-BV-0018C, 2P21-BV-0027A, 2P21-BV-0027B, 2P21-BV-0027C, 2P21-BV-0030B, 2P21-BV-0115B, 2P21-BV-0115C, 2P21-BV-0501A1, 2P21-BV-0501A2, 2P21-BV-0501B1, 2P21-BV-0501B2, 2P21-BV-0501C1, 2P21-BV-0501C2, 2P21-BV-0502A1, 2P21-BV-0502A2, 2P21-BV-0502B1, 2P21-BV-0502B2, 2P21-BV-0502C1, 2P21-BV-0502C2, 2P21-BV-0503A, 2P21-BV-0503B, 2P21-BV-0503C, 2P21-BV-0506A1, 2P21-BV-0506A2, 2P21-BV-0506A3, 2P21-BV-0506B1, 2P21-BV-0506B2, 2P21-BV-0506B3, 2P21-BV-0506C1, 2P21-BV-0506C2, 2P21-BV-0506C3, 2P21-BV-0510A1, 2P21-BV-0510A2, 2P21-BV-0510B1, 2P21-BV-0510B2, 2P21-BV-0510C1, 2P21-BV-0510C2, 2P21-BV-0518A, 2P21-BV-0518B, 2P21-BV-0518C, 2P21-BV-0519A, 2P21-BV-0519B, 2P21-BV-0519C, 2P21-BV-0534A1, 2P21-BV-0534A2, 2P21-BV-0534B1, 2P21-BV-0534B2, 2P21-BV-0534C1, 2P21-BV-0534C2, 2P21-BV-0536A, 2P21-BV-0536B, 2P21-BV-0586A, 2P21-BV-0586B, 2P21-BV-0586C, 2P21-BV-0587A, 2P21-BV-0587B, 2P21-BV-0587C, 2P21-BV-0590A, 2P21-BV-0590B, 2P21-BV-0590C, 2P21-BV-0616A, 2P21-BV-0616B, 2P21-BV-0616C, 2P21-BV-0624A, 2P21-BV-0624B, 2P21-BV-0624C, 2P21-BV-0625A1, 2P21-BV-0625A2, 2P21-BV-0625B1, 2P21-BV-0625B2, 2P21-BV-0625C1, 2P21-BV-0625C2, 2P21-BV-0632A, 2P21-BV-0632B, 2P21-BV-0624C, 2P21-BV-0638A, 2P21-BV-0638B, 2P21-BV-0638C, 2P21-BV-0641C, 2P21-BV-0642C, 2P21-BV-0643C, 2P21-BV-0645C, 2P21-BV-0647A, 2P21-BV-0647B, 2P21-BV-0647C, 2P21-BV-0649C1, 2P21-BV-0649C2, 2P21-BV-0651A, 2P21-BV-0651B, 2P21-BV-0663A, 2P21-BV-0663B, 2P21-BV-0663C, 2P25-BV-0500A1, 2P25-BV-0500A2, 2P25-BV-0500B1, 2P25-BV-0500B2, 2P25-BV-0500C1, 2P25-BV-0500C2, 2P25-BV-0502A, 2P25-BV-0502B, 2P25-BV-0502C, 2P25-BV-0503, 2P25-BV-0504B, 2P25-BV-0504C, 2P25-BV-0509A1, 2P25-BV-0509A2, 2P25-BV-0509B1, 2P25-BV-0509B2, 2P25-BV-0509C1, 2P25-BV-0509C2, 2P25-BV-0516A, 2P25-BV-0518B, 2P25-BV-0521A, 2P25-BV-0521B, 2P25-BV-0523, 2P25-BV-0525A1, 2P25-BV-0525A2, 2P25-BV-0525B1, 2P25-BV-0525B2, 2P25-BV-0525C1, 2P25-BV-0525C2, 2P25-BV-0526A, 2P25-BV-0526C, 2P25-BV-0528A, 2P25-BV-0528B, 2P25-BV-0528C, 2P25-BV-0530B1, 2P25-BV-0530B2, 2P25-BV-0530B3, 2P25-BV-0530B4, 2P25-BV-0531B, 2P25-BV-0532B, 2P25-BV-0540A, 2P25-BV-0540B, 2P25-BV-0541A, 2P25-BV-0541B, 2P25-BV-0542, 2P25-BV-0550, 2P25-BV-0552B, 2P25-BV-0552C, 2P25-BV-0554B, 2P25-BV-0554C, 2P25-BV-0555B, 2P25-BV-0555C, 2P25-BV-0557B, 2P25-BV-0557C, 2P25-BV-0572A, 2P25-BV-0572B, 2P25-BV-0572C, 2P25-BV-0573A, 2P25-BV-0573B, 2P25-BV-0573C, 2P25-BV-0576A, 2P25-BV-0576C, 2P25-BV-0577A, 2P25-BV-0577C, 2P25-BV-0578A, 2P25-BV-0578C, 2P25-BV-0579A, 2P25-BV-0580A, 2P25-BV-0581A, 2P25-BV-0582A, 2P25-BV-0610, 2P25-BV-0612, 2P25-BV-0614, 2P25-BV-0616.
B08-01 (51), S/N: 071106	2	2C41-BV-0501, 2C41-BV-0513.
B08-02 (56), S/N: 071107	3	2G41-BV-0501, 2G41-BV-0502, 2G41-BV-0519.
B10-03 (76), S/N: 071108	15	2P21-BV-0021A, 2P21-BV-0021B, 2P21-BV-0021C, 2P21-BV-0025A, 2P21-BV-0025B, 2P21-BV-0025C, 2P21-BV-0046A, 2P21-BV-0046B, 2P21-BV-0046C, 2P21-BV-0111B, 2P21-BV-0135B, 2P21-BV-0135C, 2P21-BV-0531A, 2P21-BV-0531B, 2P21-BV-0531C.
B12-01 (86), S/N: 071135	2	2C41-BV-0004A, 2C41-BV-0004B.

PAGE TOTAL= 215

PAGE 7 OF 34 4 1

<u>Velan Order No.</u> <u>X011-273180-N</u>		
A03-01 (11), S/N: 071137	4	2T62-BV-0410, 2T62-BV-0411, 2T62-BV-0440, 2T62-BV-0441.
A05-01 (16), S/N: 071117	1	2P18-BV-0003
A07-1A (226), S/N: 071142	4	2B21-BV-0903A, 2B21-BV-0903B, 2B21-BV-0903C, 2B21-BV-0903D.
A07-1B (251), S/N: 071126	4	2T62-BV-0420, 2T62-BV-0421, 2T62-BV-0430, 2T62-BV-0431.
A08-03 (36), S/N: 071118	32	2P11-BV-0041, 2P13-BV-0700, 2P13-BV-0701, 2P13-BV-0702, 2P13-BV-0703, 2P52-BV-0087, 2P56-BV-0105, 2T62-BV-0700A, 2T62-BV-0700B, 2T62-BV-0700C, 2T62-BV-0700D, 2T62-BV-0702A, 2T62-BV-0702B, 2T62-BV-0702C, 2T62-BV-0702D, 2T62-BV-0704B, 2T62-BV-0706B, 2T62-BV-0708A, 2T62-BV-0708B, 2T62-BV-0710A, 2T62-BV-0710B, 2T62-BV-0712A, 2T62-BV-0712B, 2T62-BV-0714, 2T62-BV-0716A, 2T62-BV-0716B, 2T62-BV-0718A, 2T62-BV-0718B, 2T62-BV-0718C, 2T62-BV-0718D, 2T62-BV-0720A, 2T62-BV-0720B.
A08-3B (221), S/N: 071141	5	2G51-BV-0024, 2G51-BV-0025, 2T62-BV-0764C, 2T62-BV-0766C, 2P11-BV-0170.
A08-06 (41), S/N: 071119	3	2P54-BV-0024A, 2P54-BV-0024B, 2P54-BV-0047.
A08-6A (236), S/N: 071058	3	2P54-BV-0500A, 2P54-BV-0500B, 2P54-BV-0501.
A08-6B (256), S/N: 071061	10	2P54-BV-0026A, 2P54-BV-0026B, 2P54-BV-0706A, 2P54-BV-0706B, 2P54-BV-0707A, 2P54-BV-0707B, 2P54-BV-0713, 2P54-BV-0714A, 2P54-BV-0714B, 2P54-BV-0715.
A11-03 (56), S/N: 071120	8	2G51-BV-0021, 2G51-BV-0022, 2G51-BV-0023, 2T62-BV-0008C, 2T62-BV-0008B, 2T62-BV-0011C, 2T62-BV-0011B, 2E22-BV-0510C.
A11-4A (231), S/N: 071125	8	2B21-BV-0522A, 2B21-BV-0522B, 2B21-BV-0522C, 2B21-BV-0522D, 2B21-BV-0521A, 2B21-BV-0521B, 2B21-BV-0521C, 2B21-BV-0521D.
A14-01 (76), S/N: 071037	3	2P26-BV-1008A, 2P26-BV-1008B, 2P26-BV-1008C.
A20-02 (106), S/N: 071043	69	2B31-BV-0005A, 2B31-BV-0005B, 2B31-BV-0005C, 2B31-BV-0005D, 2B31-BV-0005E, 2B31-BV-0005F, 2B31-BV-0005G, 2B31-BV-0005H, 2B31-BV-0005J, 2B31-BV-0005K, 2B31-BV-0006A, 2B31-BV-0006B, 2B31-BV-0006C, 2B31-BV-0006D, 2B31-BV-0006E, 2B31-BV-0006F, 2B31-BV-0006G, 2B31-BV-0006H, 2B31-BV-0006J, 2B31-BV-0006K, 2B31-BV-0007A, 2B31-BV-0007B, 2B31-BV-0007C, 2B31-BV-0007D, 2B31-BV-0007E, 2B31-BV-0007F, 2B31-BV-0007G, 2B31-BV-0007H, 2B31-BV-0007J, 2B31-BV-0007K, 2B31-BV-0008A, 2B31-BV-0008B, 2B31-BV-0008C, 2B31-BV-0008D, 2B31-BV-0008E, 2B31-BV-0008F, 2B31-BV-0008G, 2B31-BV-0008H, 2B31-BV-0008J, 2B31-BV-0008K, 2B31-BV-0500A, 2B31-BV-0500B, 2B31-BV-0500C, 2B31-BV-0500D, 2B31-BV-0500E, 2B31-BV-0500F, 2B31-BV-0500G, 2B31-BV-0500H, 2B31-BV-0500J, 2B31-BV-0500K, 2B31-BV-0501A, 2B31-BV-0501B, 2B31-BV-0501C, 2B31-BV-0501D, 2B31-BV-0501E, 2B31-BV-0501F, 2B31-BV-0501G, 2B31-BV-0501H, 2B31-BV-0501J, 2B31-BV-0501K, 2G31-BV-0060, 2G31-BV-0061, 2G31-BV-0063, 2C41-BV-0503, 2C41-BV-0504, 2C41-BV-0706, 2C41-BV-0707, 2C41-BV-0708, 2C41-BV-0709.
A21-02 (126), S/N: 071121	12	2P54-BV-0700A, 2P54-BV-0700B, 2P54-BV-0701A, 2P54-BV-0701B, 2P54-BV-0702A, 2P54-BV-0702B, 2P54-BV-0703A, 2P54-BV-0703B, 2P54-BV-0704A, 2P54-BV-0704B, 2P54-BV-0705A, 2P54-BV-0705B.
A24-01 (131), S/N: 071047	7	2C41-BV-0024, 2C41-BV-0025, 2C41-BV-0026, 2C41-BV-0027, 2C41-BV-0507, 2C41-BV-0508, 2C41-BV-0509.
A24-03 (141), S/N: 071122	1	2T62-BV-0026
A24-04 (146), S/N: 071143	2	2T62-BV-0400, 2T62-BV-0401.
A26-01 (151), S/N: 071138	1	2C41-BV-0009

PAGE TOTAL= 177

PAGE 8 OF 34 4 1

<u>Velan Order No.</u> <u>X011-273180-N (Continued)</u>		
A27-01 (156), S/N: 071123	4	2P21-BV-0523A, 2P21-BV-0523B, 2P21-BV-0523C, 2P21-BV-0523D.
A27-02 (161), S/N: 071139	2	2B21-BV-0029, 2B21-BV-0030.
A27-03 (166), S/N: 071124	1	2E51-BV-0143.
A32-01 (181), S/N: 071051	8	2P54-BV-0007A, 2P54-BV-0007B, 2P54-BV-0014A, 2P54-BV-0014B, 2P54-BV-0016A, 2P54-BV-0016B, 2P54-BV-0018A, 2P54-BV-0018B.
A35-01 (196), S/N: 071140	2	2P54-BV-0019A, 2P54-BV-0019B.
<u>Velan Order No.</u> <u>X011-273200-N</u>		
A06-01 (11), S/N: 071166	101	2E11-BV-0506A, 2E11-BV-0506B, 2E11-BV-0506C, 2E11-BV-0519A, 2E11-BV-0519B, 2E11-BV-0519C, 2E11-BV-0520A, 2E11-BV-0520B, 2E11-BV-0520C, 2E11-BV-0532B, 2E11-BV-0532C, 2E11-BV-0533B, 2E11-BV-0533C, 2E11-BV-0534B, 2E11-BV-0534C, 2E11-BV-0535B, 2E11-BV-0535C, 2E11-BV-0539A, 2E11-BV-0539B, 2E11-BV-0539C, 2E11-BV-0540A, 2E11-BV-0540B, 2E11-BV-0540C, 2E11-BV-0541A, 2E11-BV-0541B, 2E11-BV-0541C, 2E11-BV-0542A, 2E11-BV-0542B, 2E11-BV-0542C, 2E11-BV-0553A, 2E11-BV-0553B, 2E11-BV-0553C, 2E11-BV-0554A, 2E11-BV-0554B, 2E11-BV-0554C, 2E11-BV-0561A, 2E11-BV-0561B, 2E11-BV-0561C, 2E11-BV-0562A, 2E11-BV-0562B, 2E11-BV-0562C, 2E11-BV-0701A, 2E11-BV-0701B, 2E11-BV-0701C, 2E11-BV-0702A, 2E11-BV-0702B, 2E11-BV-0702C, 2E11-BV-0703A, 2E11-BV-0703B, 2E11-BV-0703C, 2E11-BV-0704A, 2E11-BV-0704B, 2E11-BV-0705A, 2E11-BV-0705B, 2E11-BV-0706A, 2E11-BV-0706B, 2E11-BV-0706C, 2E11-BV-0707A, 2E11-BV-0707B, 2E11-BV-0707C, 2E11-BV-0708A, 2E11-BV-0708B, 2E11-BV-0708C, 2E11-BV-0709A, 2E11-BV-0709B, 2E11-BV-0709C, 2E11-BV-0710A, 2E11-BV-0710B, 2E11-BV-0710C, 2E11-BV-0711A, 2E11-BV-0711B, 2E11-BV-0711C, 2E11-BV-0712A, 2E11-BV-0712B, 2E11-BV-0712C, 2E11-BV-0713A,
A06-1A (236), S/N: 071162	4	2E11-BV-0704C, 2E11-BV-0705C, 2E11-BV-0568C, 2E11-BV-0569C.
A06-02 (16), S/N: 071145	2	2T49-BV-0014B, 2T49-BV-0014C.
A06-3A (241), S/N: 071163	6	2T31-BV-0047, 2T31-BV-0048, 2T31-BV-0049, 2T31-BV-0053, 2T31-BV-0054, 2T31-BV-0503.
A06-04 (26), S/N: 071146	4	2T22-BV-0716A, 2T22-BV-0716B, 2T22-BV-0716C, 2T22-BV-0716D.

PAGE TOTAL= 134

PAGE 9 OF 3441

Velan Order No.X011-273200-NA06-05 (31), S/N: 071132
(to be continued...)

240

2P21-BV-0154A1, 2P21-BV-0154A2, 2P21-BV-0154A3, 2P21-BV-0154B1, 2P21-BV-0154B2, 2P21-BV-0154B3, 2P21-BV-0154C1, 2P21-BV-0154C2, 2P21-BV-0154C3, 2P21-BV-0504A1, 2P21-BV-0504A2, 2P21-BV-0504A3, 2P21-BV-0504B1, 2P21-BV-0504B2, 2P21-BV-0504B3, 2P21-BV-0504C1, 2P21-BV-0504C2, 2P21-BV-0504C3, 2P21-BV-0505A1, 2P21-BV-0505A2, 2P21-BV-0505B1, 2P21-BV-0505B2, 2P21-BV-0505C1, 2P21-BV-0505C2, 2P21-BV-0508A1, 2P21-BV-0508A2, 2P21-BV-0508A3, 2P21-BV-0508B1, 2P21-BV-0508B2, 2P21-BV-0508B3, 2P21-BV-0508C1, 2P21-BV-0508C2, 2P21-BV-0508C3, 2P21-BV-0509A, 2P21-BV-0509B, 2P21-BV-0509C, 2P21-BV-0511A, 2P21-BV-0511B, 2P21-BV-0511C, 2P21-BV-0513A, 2P21-BV-0513B, 2P21-BV-0513C, 2P21-BV-0516B, 2P21-BV-0516C, 2P21-BV-0522A, 2P21-BV-0522B, 2P21-BV-0522C, 2P21-BV-0523A, 2P21-BV-0523C, 2P21-BV-0524B, 2P21-BV-0524C, 2P21-BV-0530A, 2P21-BV-0530B, 2P21-BV-0532A, 2P21-BV-0532B, 2P21-BV-0532C, 2P21-BV-0533A, 2P21-BV-0533B, 2P21-BV-0533C, 2P21-BV-0535A, 2P21-BV-0535B, 2P21-BV-0535C, 2P21-BV-0583A1, 2P21-BV-0583A2, 2P21-BV-0583B1, 2P21-BV-0583B2, 2P21-BV-0583C1, 2P21-BV-0583C2, 2P21-BV-0584C, 2P21-BV-0589A, 2P21-BV-0589B, 2P21-BV-0589C, 2P21-BV-0597B, 2P21-BV-0604A, 2P21-BV-0640C, 2P21-BV-0644C, 2P21-BV-0646B, 2P21-BV-0646C, 2P21-BV-0648C1, 2P21-BV-0648C2, 2P21-BV-0650A, 2P21-BV-0650B, 2P21-BV-0652A, 2P21-BV-0662A, 2P21-BV-0662B, 2P21-BV-0662C, 2P21-BV-0666B, 2P21-BV-0700A1, 2P21-BV-0700A2, 2P21-BV-0700B1, 2P21-BV-0700B2, 2P21-BV-0700C1, 2P21-BV-0700C2, 2P21-BV-0701A1, 2P21-BV-0701A2, 2P21-BV-0701B1, 2P21-BV-0701B2, 2P21-BV-0701C1, 2P21-BV-0701C2, 2P21-BV-0702A1, 2P21-BV-0702A2, 2P21-BV-0702B1, 2P21-BV-0702B2, 2P21-BV-0702C1, 2P21-BV-0702C2, 2P21-BV-0703A1, 2P21-BV-0703A2, 2P21-BV-0703B1, 2P21-BV-0703B2, 2P21-BV-0703C1, 2P21-BV-0703C2, 2P21-BV-0704A1, 2P21-BV-0704A2, 2P21-BV-0704A3, 2P21-BV-0704B1, 2P21-BV-0704B2, 2P21-BV-0704B3, 2P21-BV-0704C1, 2P21-BV-0704C2, 2P21-BV-0704C3, 2P21-BV-0705A1, 2P21-BV-0705A2, 2P21-BV-0705A3, 2P21-BV-0705B1, 2P21-BV-0705B2, 2P21-BV-0705B3, 2P21-BV-0705C1, 2P21-BV-0705C2, 2P21-BV-0705C3, 2P21-BV-0706A, 2P21-BV-0706B, 2P21-BV-0706C, 2P21-BV-0707A, 2P21-BV-0707B, 2P21-BV-0707C, 2P21-BV-0708A, 2P21-BV-0708B, 2P21-BV-0708C, 2P21-BV-0709A, 2P21-BV-0709B, 2P21-BV-0709C, 2P21-BV-0710A, 2P21-BV-0710B, 2P21-BV-0710C, 2P21-BV-0715A1, 2P21-BV-0715A2, 2P21-BV-0715A3, 2P21-BV-0715B1, 2P21-BV-0715B2, 2P21-BV-0715B3, 2P21-BV-0715C1, 2P21-BV-0715C2, 2P21-BV-0715C3, 2P21-BV-0716A, 2P21-BV-0716B, 2P21-BV-0716C, 2P21-BV-0717A, 2P21-BV-0717B, 2P21-BV-0717C, 2P21-BV-0724A1, 2P21-BV-0724A2, 2P21-BV-0724B1, 2P21-BV-0724B2, 2P21-BV-0724C1, 2P21-BV-0724C2, 2P21-BV-0732A, 2P21-BV-0732B, 2P21-BV-0732C, 2P21-BV-0733A, 2P21-BV-0733B, 2P21-BV-0733C, 2P21-BV-0734A1, 2P21-BV-0734A2, 2P21-BV-0734B1, 2P21-BV-0734B2, 2P21-BV-0734C1, 2P21-BV-0734C2, 2P21-BV-0735A, 2P21-BV-0735B, 2P21-BV-0735C, 2P21-BV-0736A, 2P21-BV-0737A, 2P21-BV-0737B, 2P21-BV-0737C, 2P21-BV-0738B, 2P21-BV-0739A, 2P21-BV-0741B, 2P21-BV-0742B, 2P21-BV-0742C, 2P21-BV-0743B, 2P21-BV-0743C, 2P21-BV-0744B, 2P21-BV-0744C, 2P21-BV-0745B, 2P21-BV-0745C, 2P21-BV-0746A, 2P21-BV-0746B, 2P21-BV-0746C, 2P21-BV-0747A, 2P21-BV-0747B, 2P21-BV-0747C, 2P21-BV-0748A, 2P21-BV-0748B, 2P21-BV-0748C, 2P21-BV-0749A, 2P21-BV-0749B, 2P21-BV-0749C, 2P21-BV-0750B, 2P21-BV-0750C, 2P21-BV-0751B, 2P21-BV-0751C, 2P25-BV-0032A, 2P25-BV-0032B, 2P25-BV-0032C, 2P25-BV-0501A, 2P25-BV-0501B, 2P25-BV-0501C, 2P25-BV-0505B, 2P25-BV-0505C, 2P25-BV-0511A1, 2P25-BV-0511A2, 2P25-BV-0511B1, 2P25-BV-0511B2, 2P25-BV-0511C1, 2P25-BV-0511C2, 2P25-BV-0512A1, 2P25-BV-0514A1, 2P25-BV-0514A2, 2P25-BV-0514B1, 2P25-BV-0514B2, 2P25-BV-0514C1, 2P25-BV-0514C2, 2P25-BV-0515A, 2P25-BV-0517A, 2P25-BV-0517B, 2P25-BV-0517C, 2P25-BV-0519A1, 2P25-BV-0519A2, 2P25-BV-0519A3, 2P25-BV-0519C1,

PAGE TOTAL= 240

PAGE 10 OF 3441

Velan Order No. X011-273200-N		
A06-05 (31), S/N: 071132 (to be continued...)	111	2P25-BV-0519C2, 2P25-BV-0519C3, 2P25-BV-0520A1, 2P25-BV-0520A2, 2P25-BV-0520A3, 2P25-BV-0520C1, 2P25-BV-0520C2, 2P25-BV-0520C3, 2P25-BV-0522A, 2P25-BV-0522B, 2P25-BV-0522C, 2P25-BV-0524, 2P25-BV-0527, 2P25-BV-0529A, 2P25-BV-0529B, 2P25-BV-0529C, 2P25-BV-0533B, 2P25-BV-0536B, 2P25-BV-0538B, 2P25-BV-0539B, 2P25-BV-0553B, 2P25-BV-0553C, 2P25-BV-0556B, 2P25-BV-0556C, 2P25-BV-0558C, 2P25-BV-0559, 2P25-BV-0561, 2P25-BV-0565B, 2P25-BV-0566A, 2P25-BV-0566B, 2P25-BV-0567A, 2P25-BV-0567B, 2P25-BV-0568A, 2P25-BV-0568B, 2P25-BV-0569A, 2P25-BV-0569B, 2P25-BV-0570A, 2P25-BV-0570B, 2P25-BV-0571A, 2P25-BV-0571B, 2P25-BV-0611, 2P25-BV-0613, 2P25-BV-0615, 2P25-BV-0700A1, 2P25-BV-0700A2, 2P25-BV-0700B1, 2P25-BV-0700B2, 2P25-BV-0700C1, 2P25-BV-0700C2, 2P25-BV-0701A1, 2P25-BV-0701A2, 2P25-BV-0701B1, 2P25-BV-0701B2, 2P25-BV-0701C1, 2P25-BV-0701C2, 2P25-BV-0702A1, 2P25-BV-0702A2, 2P25-BV-0702B1, 2P25-BV-0702B2, 2P25-BV-0702C1, 2P25-BV-0702C2, 2P25-BV-0703A1, 2P25-BV-0703A2, 2P25-BV-0703B1, 2P25-BV-0703B2, 2P25-BV-0703C1, 2P25-BV-0703C2, 2P25-BV-0704A1, 2P25-BV-0704A2, 2P25-BV-0704B1, 2P25-BV-0704B2, 2P25-BV-0704C1, 2P25-BV-0704C2, 2P25-BV-0706A1, 2P25-BV-0706A2, 2P25-BV-0706B1, 2P25-BV-0706B2, 2P25-BV-0706C1, 2P25-BV-0706C2, 2P25-BV-0707A1, 2P25-BV-0707A2, 2P25-BV-0707B1, 2P25-BV-0707B2, 2P25-BV-0707C1, 2P25-BV-0707C2, 2P25-BV-0708B, 2P25-BV-0709A, 2P25-BV-0709B, 2P25-BV-0709C, 2P25-BV-0710B, 2P25-BV-0710C, 2P25-BV-0711B, 2P25-BV-0711C, 2P25-BV-0712A, 2P25-BV-0712B, 2P25-BV-0712C, 2P25-BV-0713B, 2P25-BV-0713C, 2P25-BV-0519A4, 2P25-BV-0519B1, 2P25-BV-0519B2, 2P25-BV-0519B3, 2P25-BV-0519B4, 2P25-BV-0519C4, 2P25-BV-0520A4, 2P25-BV-0520B1, 2P25-BV-0520B2, 2P25-BV-0520B3, 2P25-BV-0520B4, 2P25-BV-0520C4, 2P25-BV-0535B.
A06-5C (226), S/N: 071161	2	2T31-BV-0714, 2T31-BV-0715.
A06-5D (266), S/N: 071165	1	2P25-BV-0597C1.
A09-01 (36), S/N: 071147	25	2E11-BV-0013A, 2E11-BV-0013B, 2E11-BV-0013C, 2E11-BV-0043A, 2E11-BV-0043B, 2E11-BV-0043C, 2E11-BV-0546C, 2E11-BV-0547A, 2E11-BV-0547B, 2E11-BV-0547C, 2E11-BV-0548A, 2E11-BV-0548B, 2E11-BV-0548C, 2E11-BV-0557A, 2E11-BV-0557B, 2E11-BV-0557C, 2E11-BV-0558A, 2E11-BV-0558B, 2E11-BV-0558C, 2E11-BV-0729A, 2E11-BV-0729B, 2E11-BV-0729C, 2E11-BV-0730A, 2E11-BV-0730B, 2E11-BV-0730C.
A09-02 (41), S/N: 071148	11	2E22-BV-0011B, 2E22-BV-0011C, 2E22-BV-0507B, 2E22-BV-0507C, 2E22-BV-0514B, 2E22-BV-0514C, 2E22-BV-0515B, 2E22-BV-0515C, 2E51-BV-0501, 2E51-BV-0527, 2E51-BV-0530.
A09-04 (51), S/N: 071149	38	2P21-BV-0028A, 2P21-BV-0028B, 2P21-BV-0028C, 2P21-BV-0031B, 2P21-BV-0049A, 2P21-BV-0049B, 2P21-BV-0049C, 2P21-BV-0050A, 2P21-BV-0050B, 2P21-BV-0050C, 2P21-BV-0105A, 2P21-BV-0105B, 2P21-BV-0105C, 2P21-BV-0108A, 2P21-BV-0108B, 2P21-BV-0108C, 2P21-BV-0110B, 2P21-BV-0110C, 2P21-BV-0116B, 2P21-BV-0116C, 2P21-BV-0517A, 2P21-BV-0517B, 2P21-BV-0517C, 2P25-BV-0026A, 2P25-BV-0026B, 2P25-BV-0026C, 2P25-BV-0027A, 2P25-BV-0027B, 2P25-BV-0027C, 2P25-BV-0028A, 2P25-BV-0028B, 2P25-BV-0028C, 2P25-BV-0566C, 2P25-BV-0567C, 2P25-BV-0568C, 2P25-BV-0569C, 2P25-BV-0570C, 2P25-BV-0571C.
A12-01 (61), S/N: 071150	3	2E11-BV-0012A, 2E11-BV-0012B, 2E11-BV-0012C.
A12-2A (246), S/N: 071086	2	2T31-BV-0040, 2T31-BV-0041.
A15-01 (76), S/N: 071067	2	2T49-BV-0011B, 2T49-BV-0011C.
A15-02 (81), S/N: 071151	3	2E11-BV-0042A, 2E11-BV-0042B, 2E11-BV-0042C.
A15-2A (261), S/N: 071164	2	2T49-BV-0013B, 2T49-BV-0013C.
A15-3A (251), S/N: 071168	3	2T31-BV-0050, 2T31-BV-0051, 2T31-BV-0052.

PAGE TOTAL= 203

PAGE 11 OF 3441

<u>Velan Order No.</u> <u>X011-273200-N</u>		
A15-4A (196), S/N: 071160	3	2P21-BV-0140A, 2P21-BV-0140B, 2P21-BV-0140C.
A18-02 (106), S/N: 071152	4	2E51-BV-0128, 2E51-BV-0129, 2E51-BV-0130, 2E51-BV-0131.
A18-03 (111), S/N: 071153	8	2E22-BV-0019B, 2E22-BV-0019C, 2E22-BV-0021B, 2E22-BV-0021C, 2E22-BV-0022B, 2E22-BV-0022C, 2E22-BV-0506B, 2E22-BV-0506C.
A18-4A (256), S/N: 071169	2	2E51-BV-0144, 2E51-BV-0145.
A18-06 (126), S/N: 071154	75	2E22-BV-0025B, 2E22-BV-0025C, 2E22-BV-0026B, 2E22-BV-0026C, 2E22-BV-0027B, 2E22-BV-0027C, 2E22-BV-0028B, 2E22-BV-0028C, 2E22-BV-0029B, 2E22-BV-0029C, 2E22-BV-0702B, 2E22-BV-0702C, 2E22-BV-0703B, 2E22-BV-0703C, 2E22-BV-0704B, 2E22-BV-0704C, 2E22-BV-0705B, 2E22-BV-0705C, 2E22-BV-0706B, 2E22-BV-0706C, 2E22-BV-0707B, 2E22-BV-0707C, 2E22-BV-0708B, 2E22-BV-0708C, 2E22-BV-0709B, 2E22-BV-0709C, 2E22-BV-0710B, 2E22-BV-0710C, 2E22-BV-0711B, 2E22-BV-0711C, 2E22-BV-0712B, 2E22-BV-0712C, 2E22-BV-0713B, 2E22-BV-0713C, 2E22-BV-0714B, 2E22-BV-0714C, 2E22-BV-0715B, 2E22-BV-0715C, 2E51-BV-0040, 2E51-BV-0041, 2E51-BV-0042, 2E51-BV-0043, 2E51-BV-0045, 2E51-BV-0046, 2E51-BV-0053, 2E51-BV-0054, 2E51-BV-0055, 2E51-BV-0056, 2E51-BV-0057, 2E51-BV-0058, 2E51-BV-0059, 2E51-BV-0060, 2E51-BV-0061, 2E51-BV-0506, 2E51-BV-0507, 2E51-BV-0508, 2E51-BV-0509, 2E51-BV-0533, 2E51-BV-0534, 2E51-BV-0703, 2E51-BV-0704, 2E51-BV-0707, 2E51-BV-0708, 2E51-BV-0709, 2E51-BV-0710, 2E51-BV-0711, 2E51-BV-0712, 2E51-BV-0735, 2E51-BV-0736, 2E51-BV-0737, 2E51-BV-0738, 2E51-BV-0762, 2E51-BV-0763, 2E51-BV-0764, 2E51-BV-0765.
A19-02 (136), S/N: 071155	2	2G31-BV-0054, 2G31-BV-0056.
A22-01 (146), S/N: 071156	2	2E11-BV-0522B, 2E11-BV-0522C.
A22-03 (156), S/N: 071157	4	2B21-BV-0504, 2B21-BV-0505, 2B21-BV-0506, 2B21-BV-0507.
A22-04 (161), S/N: 071167	23	2E11-BV-0522A, 2E51-BV-0745, 2E51-BV-0746, 2E51-BV-0770, 2E51-BV-0771, 2N22-BV-0010A, 2N22-BV-0010B, 2N22-BV-0012A, 2N22-BV-0012B, 2N22-BV-0014A, 2N22-BV-0014B, 2N22-BV-0505A, 2N22-BV-0505B, 2N22-BV-0506A, 2N22-BV-0506B, 2N22-BV-0507A, 2N22-BV-0507B, 2N22-BV-0508A, 2N22-BV-0508B, 2N22-BV-0509A, 2N22-BV-0509B, 2N22-BV-0510A, 2N22-BV-0510B.
A22-05 (166), S/N: 071076	2	2G31-BV-0604, 2G31-BV-0605.
A22-06 (171), S/N: 071158	21	2E22-BV-0014B, 2E22-BV-0014C, 2E22-BV-0501B, 2E22-BV-0501C, 2E22-BV-0502B, 2E22-BV-0502C, 2E22-BV-0508B, 2E22-BV-0508C, 2E22-BV-0509B, 2E22-BV-0509C, 2E51-BV-0037, 2E51-BV-0502, 2E51-BV-0503, 2E51-BV-0510, 2E51-BV-0511, 2E51-BV-0512, 2E51-BV-0513, 2E51-BV-0766, 2E51-BV-0767, 2E51-BV-0768, 2E51-BV-0769.
A27-04 (186), S/N: 071159	6	2E22-BV-0013B, 2E22-BV-0013C, 2E22-BV-0017B, 2E22-BV-0017C, 2E51-BV-0019, 2E51-BV-0036.

PAGE TOTAL= 152

176

PAGE 4 OF 171



**LUNG MEN PROJECT
RELEASE FOR SHIPMENT**

Product Quality Certificate

CLIENT: Taiwan Power Company		TPC CONTRACT NO. 8749111M019A1	SHIPMENT NO. VEL 005 (UNIT 1)
TPC SPECIFICATION NO. 31113.623898		REV. 03	ADDENDA 5
PRODUCT DESCRIPTION PACKING RINGS & GASKETS FOR UNIT 2 FOR CARBON AND ALLOY STEEL VALVES – SPARE PARTS			
<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>VELAN ORDER NO.</u> X011-595591-B	<u>ITEM NO.</u> (SEE ATTACHED LIST)	<u>QUANTITY</u> (SEE ATTACHED LIST)	
ALL SUPPORTING DOCUMENTATION REQUIRED BY THE ABOVE REFERENCED DOCUMENTS HAVE BEEN ISSUED TO TPC			
<u>AUTHORIZED REPRESENTATIVE.</u>			
SIGNED <i>[Signature]</i>		DATE <i>August 13/07</i>	
TITLE Q.C. DOCUMENTATION MANAGER		SUPPLIER VELAN INC.	
<u>TPC REPRESENTATIVE CERTIFICATION¹</u>			
THIS IS TO CERTIFY THAT EVIDENCE SUPPORTING THE ABOVE SUPPLIER'S CERTIFICATION STATEMENT HAS BEEN REVIEWED AND THAT NO DEVIATIONS FROM QUALITY ASSURANCE REQUIREMENTS HAVE BEEN FOUND UNLESS NOTED BELOW."			
SIGNED <i>Shyh-Kwei Lo</i>		DATE <i>Aug. 13, 2007</i>	
TITLE PROCUREMENT SURVEILLANCE REPRESENTATIVE <i>TPC/DNS QA Engineer</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.

PAGE 9 OF 11



**LUNG MEN PROJECT
RELEASE FOR SHIPMENT**

Product Quality Certificate

CLIENT: Taiwan Power Company		TPC CONTRACT NO. 8749111M019A1	SHIPMENT NO. VEL 005 (UNIT 1)
TPC SPECIFICATION NO. 31113.623898		REV. 03	ADDENDA 5
PRODUCT DESCRIPTION PACKING RINGS & GASKETS FOR UNIT 2 FOR CARBON AND ALLOY STEEL VALVES - SPARE PARTS			
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.			
VELAN ORDER NO.	ITEM NO.	QUANTITY	
X011-595801-B	(SEE ATTACHED LIST)	(SEE ATTACHED LIST)	
ALL SUPPORTING DOCUMENTATION REQUIRED BY THE ABOVE REFERENCED DOCUMENTS HAVE BEEN ISSUED TO TPC			
AUTHORIZED REPRESENTATIVE.			
SIGNED <i>[Signature]</i>		DATE <i>August 13/07</i>	
TITLE Q.C. DOCUMENTATION MANAGER		SUPPLIER VELAN INC.	
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>Shyh-Kwei Lo</i>		DATE <i>Aug. 13, 2007</i>	
TITLE PROCUREMENT SURVEILLANCE TPC/DNS REPRESENTATIVE <i>QA Engineer</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



LUNG MEN PROJECT
RELEASE FOR SHIPMENT

Product Quality Certificate

CLIENT: Taiwan Power Company		TPC CONTRACT NO. 8749111M019A1	SHIPMENT NO. VEL 005 (UNIT 1)
TPC SPECIFICATION NO. 31113.623898		REV. 03	ADDENDA 5
PRODUCT PACKING RINGS & GASKETS FOR UNIT 2			
DESCRIPTION FOR CARBON AND ALLOY STEEL VALVES - SPARE PARTS			
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.			
VELAN ORDER NO.	ITEM NO.	QUANTITY	
X011-595811-B	(SEE ATTACHED LIST)	(SEE ATTACHED LIST)	
ALL SUPPORTING DOCUMENTATION REQUIRED BY THE ABOVE REFERENCED DOCUMENTS HAVE BEEN ISSUED TO TPC			
AUTHORIZED REPRESENTATIVE.			
SIGNED <i>[Signature]</i>		DATE <i>August 13/07</i>	
TITLE Q.C. DOCUMENTATION MANAGER		SUPPLIER VELAN INC.	
TPC REPRESENTATIVE CERTIFICATION¹			
THIS IS TO CERTIFY THAT EVIDENCE SUPPORTING THE ABOVE SUPPLIER'S CERTIFICATION STATEMENT HAS BEEN REVIEWED AND THAT NO DEVIATIONS FROM QUALITY ASSURANCE REQUIREMENTS HAVE BEEN FOUND UNLESS NOTED BELOW.			
SIGNED <i>Shyh-kwei Lo</i>		DATE <i>Aug. 13, 2007</i>	
TITLE PROCUREMENT SURVEILLANCE TPC/DV'S REPRESENTATIVE <i>QA Engineer</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.



LUNG MEN PROJECT
RELEASE FOR SHIPMENT

Product Quality Certificate

CLIENT: Taiwan Power Company		TPC CONTRACT NO. 8749111M019A1	SHIPMENT NO. VEL 005 (UNIT 1)
TPC SPECIFICATION NO. 31113.623898		REV. 03	ADDENDA 5
PRODUCT DESCRIPTION PACKING RINGS & GASKETS FOR UNIT 2 FOR CARBON AND ALLOY STEEL VALVES - SPARE PARTS			
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.			
VELAN ORDER NO.	ITEM NO.	QUANTITY	
X011-595821-B	(SEE ATTACHED LIST)	(SEE ATTACHED LIST)	
ALL SUPPORTING DOCUMENTATION REQUIRED BY THE ABOVE REFERENCED DOCUMENTS HAVE BEEN ISSUED TO TPC			
AUTHORIZED REPRESENTATIVE.			
SIGNED <i>[Signature]</i>		DATE <i>August 13/07</i>	
TITLE Q.C. DOCUMENTATION MANAGER		SUPPLIER VELAN INC.	
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>Shih-Kwei Lo</i>		DATE <i>Aug. 13, 2007</i>	
TITLE PROCUREMENT SURVEILLANCE REPRESENTATIVE <i>TPC/IMS RA Engineer</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.

PAGE 156 OF 171



**LUNG MEN PROJECT
RELEASE FOR SHIPMENT**

Product Quality Certificate

CLIENT: Taiwan Power Company		TPC CONTRACT NO. 8749111M019A1	SHIPMENT NO. VEL 005 (UNIT 1)
TPC SPECIFICATION NO. 31113.623898		REV. 03	ADDENDA 5
PRODUCT DESCRIPTION PACKING RINGS & GASKETS FOR UNIT 2 FOR CARBON AND ALLOY STEEL VALVES - SPARE PARTS			
<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>VELAN ORDER NO.</u> X011-595831-B	<u>ITEM NO.</u> (SEE ATTACHED LIST)	<u>QUANTITY</u> (SEE ATTACHED LIST)	
ALL SUPPORTING DOCUMENTATION REQUIRED BY THE ABOVE REFERENCED DOCUMENTS HAVE BEEN ISSUED TO TPC			
AUTHORIZED REPRESENTATIVE.			
SIGNED <i>[Signature]</i>		DATE <i>August 13/07</i>	
TITLE Q.C. DOCUMENTATION MANAGER		SUPPLIER VELAN INC.	
<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>Shyh-Kuei Lo</i>		DATE <i>Aug. 13, 2007</i>	
TITLE PROCUREMENT SURVEILLANCE REPRESENTATIVE <i>TPC/DWS QA Engineer</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

QUALITY RECORD PACKAGE INDEX
LUNG MEN NUCLEAR POWER PROJECT UNITS 2 PACKING RING
SETS & GASKETS

Page No. 1 of 1

TPC Order No.	Velan Order No.	Item	Remarks
8749111M019A1	VARIOUS	VARIOUS	SPARE PARTS

[illegible]

Shyh-kwei Lo
TPC/DNS
Aug. 13, 2007

Total Pages=

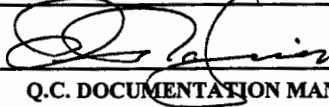
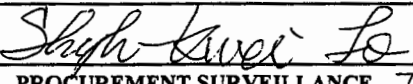
176

PAGE 4 OF 171



**LUNG MEN PROJECT
RELEASE FOR SHIPMENT**

Product Quality Certificate

CLIENT: Taiwan Power Company		TPC CONTRACT NO. 8749111M019A1	SHIPMENT NO. VEL 005 (UNIT 2)
TPC SPECIFICATION NO. 31113.623898		REV. 03	ADDENDA 5
PRODUCT PACKING RINGS & GASKETS FOR UNIT 2 DESCRIPTION FOR CARBON AND ALLOY STEEL VALVES - SPARE PARTS			
<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>VELAN ORDER NO.</u> X011-595592-B	<u>ITEM NO.</u> (SEE ATTACHED LIST)	<u>QUANTITY</u> (SEE ATTACHED LIST)	
ALL SUPPORTING DOCUMENTATION REQUIRED BY THE ABOVE REFERENCED DOCUMENTS HAVE BEEN ISSUED TO TPC			
<u>AUTHORIZED REPRESENTATIVE.</u>			
SIGNED 		DATE August 13/07	
TITLE Q.C. DOCUMENTATION MANAGER		SUPPLIER VELAN INC.	
<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 		DATE Aug. 13, 2007	
TITLE PROCUREMENT SURVEILLANCE REPRESENTATIVE <i>TPC/DMS</i> <i>QA Engineer</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.

PAGE 9 OF 171



**LUNG MEN PROJECT
RELEASE FOR SHIPMENT**

Product Quality Certificate

CLIENT: Taiwan Power Company		TPC CONTRACT NO. 8749111M019A1	SHIPMENT NO. VEL 005 (UNIT 2)
TPC SPECIFICATION NO. 31113.623898		REV. 03	ADDENDA 5
PRODUCT DESCRIPTION PACKING RINGS & GASKETS FOR UNIT 2 FOR CARBON AND ALLOY STEEL VALVES - SPARE PARTS			
<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>VELAN ORDER NO.</u>	<u>ITEM NO.</u>	<u>QUANTITY</u>	
X011-595802-B	(SEE ATTACHED LIST)	(SEE ATTACHED LIST)	
ALL SUPPORTING DOCUMENTATION REQUIRED BY THE ABOVE REFERENCED DOCUMENTS HAVE BEEN ISSUED TO TPC			
<u>AUTHORIZED REPRESENTATIVE.</u>			
SIGNED <i>[Signature]</i>		DATE <i>August 13/07</i>	
TITLE Q.C. DOCUMENTATION MANAGER		SUPPLIER VELAN INC.	
<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>Shyh-kwei Lo</i>		DATE <i>Aug. 13, 2007</i>	
TITLE PROCUREMENT SURVEILLANCE TPC/DAS REPRESENTATIVE QA Engineer		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



**LUNG MEN PROJECT
RELEASE FOR SHIPMENT**

Product Quality Certificate

CLIENT: Taiwan Power Company		TPC CONTRACT NO. 8749111M019A1	SHIPMENT NO. VEL 005 (UNIT 2)
TPC SPECIFICATION NO. 31113.623898		REV. 03	ADDENDA 5
PRODUCT DESCRIPTION PACKING RINGS & GASKETS FOR UNIT 2 FOR CARBON AND ALLOY STEEL VALVES - SPARE PARTS			
<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>VELAN ORDER NO.</u> X011-595812-B	<u>ITEM NO.</u> (SEE ATTACHED LIST)	<u>QUANTITY</u> (SEE ATTACHED LIST)	
ALL SUPPORTING DOCUMENTATION REQUIRED BY THE ABOVE REFERENCED DOCUMENTS HAVE BEEN ISSUED TO TPC			
<u>AUTHORIZED REPRESENTATIVE.</u>			
SIGNED <i>[Signature]</i>		DATE <i>August 13/07</i>	
TITLE Q.C. DOCUMENTATION MANAGER		SUPPLIER VELAN INC.	
<u>TPC REPRESENTATIVE CERTIFICATION¹</u>			
THIS IS TO CERTIFY THAT EVIDENCE SUPPORTING THE ABOVE SUPPLIER'S CERTIFICATION STATEMENT HAS BEEN REVIEWED AND THAT NO DEVIATIONS FROM QUALITY ASSURANCE REQUIREMENTS HAVE BEEN FOUND UNLESS NOTED BELOW."			
SIGNED <i>Shyh-Kwei Lo</i>		DATE <i>Aug. 13, 2007</i>	
TITLE PROCUREMENT SURVEILLANCE REPRESENTATIVE <i>TPC/DNS QA Engineer</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.



**LUNG MEN PROJECT
RELEASE FOR SHIPMENT**

Product Quality Certificate

CLIENT: Taiwan Power Company		IPC CONTRACT NO. 8749111M019A1	SHIPMENT NO. VEL 005 (UNIT 2)
TPC SPECIFICATION NO. 31113.623898		REV. 03	ADDENDA 5
PRODUCT PACKING RINGS & GASKETS FOR UNIT 2 DESCRIPTION FOR CARBON AND ALLOY STEEL VALVES – SPARE PARTS			
<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>VELAN ORDER NO.</u>	<u>ITEM NO.</u>	<u>QUANTITY</u>	
X011-595822-B	(SEE ATTACHED LIST)	(SEE ATTACHED LIST)	
ALL SUPPORTING DOCUMENTATION REQUIRED BY THE ABOVE REFERENCED DOCUMENTS HAVE BEEN ISSUED TO TPC			
AUTHORIZED REPRESENTATIVE.			
SIGNED 		DATE <i>August 13/07</i>	
TITLE Q.C. DOCUMENTATION MANAGER		SUPPLIER VELAN INC.	
<u>TPC REPRESENTATIVE CERTIFICATION¹</u>			
THIS IS TO CERTIFY THAT EVIDENCE SUPPORTING THE ABOVE SUPPLIER'S CERTIFICATION STATEMENT HAS BEEN REVIEWED AND THAT NO DEVIATIONS FROM QUALITY ASSURANCE REQUIREMENTS HAVE BEEN FOUND UNLESS NOTED BELOW."			
SIGNED 		DATE <i>Aug. 13, 2007</i>	
TITLE PROCUREMENT SURVEILLANCE <i>TPC/PMS</i> REPRESENTATIVE <i>QA Engineer</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.

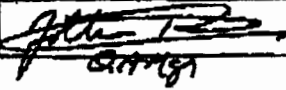


**LUNGMEN PROJECT
RELEASE FOR SHIPMENT**

Product Quality Certificate

CLIENT: Taiwan Power Company		TPC CONTRACT NO. 8749111M019A1	SHIPMENT NO. VEL 005 (UNIT 2)
TPC SPECIFICATION NO. 31113.623898		REV. 03	ADDENDA 5
PRODUCT DESCRIPTION PACKING RINGS & GASKETS FOR UNIT 2 FOR CARBON AND ALLOY STEEL VALVES - SPARE PARTS			
<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>VELAN ORDER NO.</u> X011-595832-B	<u>ITEM NO.</u> (SEE ATTACHED LIST)	<u>QUANTITY</u> (SEE ATTACHED LIST)	
ALL SUPPORTING DOCUMENTATION REQUIRED BY THE ABOVE REFERENCED DOCUMENTS HAVE BEEN ISSUED TO TPC			
<u>AUTHORIZED REPRESENTATIVE.</u>			
SIGNED <i>[Signature]</i>		DATE <i>August 13/07</i>	
TITLE Q.C. DOCUMENTATION MANAGER		SUPPLIER VELAN INC.	
<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>Shyh-kwei Lo</i>		DATE <i>Aug. 13, 2007</i>	
TITLE PROCUREMENT SURVEILLANCE REPRESENTATIVE <i>TPC/DNS QA Engineer</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

 NOTICE OF UNSATISFACTORY CONDITION Stone & Webster		Report No.	
		TPC RFA NUMBER: 10072	
CLIENT: TAIWAN POWER COMPANY		P. O. NUMBER: 8749111MC-19A1	
PROJECT: LUNG MEN NUCLEAR POWER PROJECT		Item No: 281378-28	
LOCATION: Taiwan			
VENDOR: Velan Incorporated		VENDOR LOCATION Montreal, Quebec, Canada	
UNSATISFACTORY CONDITION: (Described in Detail) During the air seat testing on a 3-inch diameter-150-psig pressure class gate valve, there was leakage. The test operator removed the valve from the test rig and cleaned the seat area. He repeated the air seat test and there was still leakage. Hydrostatic testing included different sub-tests for this valve: Shell, Packing, Seat, Backseat, Air Seat. All tests were satisfactory with the exception of the air seat test. Velan's Quality Control Procedure VEL-QDT-925 does not allow for any leakage during the air seat test. The test operator wrote a Rejection Notice Number 281378-28. This number corresponds with the valve body's serial number.			
ORIGINATOR: (S&W Inspection REP.) Gene S. Johnson	DATE: October 8, 2004	VENDOR RECEIPT: Ozzie Rodriguez (Velan Quality Control)	DATE: October 8, 2004
CORRECTIVE ACTION: (Completed By Vendor's Representative) The valve was sent back to the assembly area for analysis. Preliminary review indicates the seat may need to be re-lapped. The disk profile does not appear to be the problem. After analysis and re-lapping of the seats and wedge, the valve was re-tested and passed the air seat test.			
VENDOR'S REPRESENTATIVE:	DATE:	VERIFICATION: (S&W Auditor)	SATISFACTORY / UNSATISFACTORY /
	10/15/04		

Supplemental Response

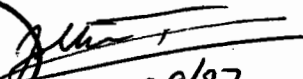
Since the manufacture of this valve, Velan has learned that the foundry failed to perform the specified corrosion test G48 Method C.

Velan submitted NCR 30283 however SWT refused Velan's request to accept the castings without the G48 test. See letters SWT-VI-MS019A1-000155 and 000177 attached.

Velan has decided to scrap all valves manufactured to date that do not have the G48 corrosion test and new casings have been purchased and delivered with acceptable G48 Method C test and all other specification requirements.

This valve will not be presented to TPC for acceptance and has been removed from the order since it did not have the required G48 test..

Velan is currently in the process of manufacturing 24 new valves each for Unit 1 and 2 from material that complies fully with all contract requirements including the G48 Method C test..


 Z. Palko
 VELAN
 QA Manager
 AUG 9/07



DEVIATION REPORT

DR 30283

Contract 8749111 M019A1

PART NUMBER				PART CODE		DESCRIPTION			
F10-0064C-49RT				—		BODIES & BONNETS			
DRAWING NUMBER / REV		MATERIAL SPEC		QCI / REV		NCLASS	ISO	MIL	
X012-273060-N01/8		SA351 CN-3MN		4216 7		3	—	—	
VALVE CUSTOMER		SHOP ORDER #		VENDOR NAME		VENDOR CODE			
TPC		—		AMPO		—			
VELAN ORDER #		ITEM		VELAN PURCHASE ORDER #		ITEM			
X012-273060-N		ALL		206562,210613		—			
TOTAL QUANTITY	QTY INSPECTED	ACC	REJ	HEAT CODE #		SERIAL NO.			
52 BONNET 51 BODY	ALL	0	ALL	ATTACHED 4		—			

DEVIATION

REQUIRED BY DWG / SPEC:

CONTRACT 8749111 M019A1
 SPEC 874-M0033 para 3.3.6.1.3.3
 CRITICAL PITTING TEST (CPT)
 ASTM G48 METHOD C @ 49°C

ACTUAL

FOUNDRY DID NOT
 PERFORM CPT ON CN-3MN
 UNIT 1: 24 PCS } BODIES AND
 UNIT 2: 24 PCS } BONNETS
 (plus spare castings)

INSPECTOR / DATE	QC MANAGER / DATE	PURCHASED PART	YES	WORK CENTER	—
2.7 AUG 8/06	Aug 8/06	MANUFACTURED PART	—	OPERATOR	—

DISPOSITION

Velan proposes acceptance of this non conformance based on (a) low design temperature (b) calculated CPT well above 49°C for all castings (c) acceptable ICT A262 Practice A

Revision 1 → SWT rejected this request. See SWT-VI-M5019A1-000155 and SWT-VI-M5019A1-000177.

All valves and castings that do not comply with requirements are hereby scrapped, not to be used for Longman. New castings have been ordered and they comply fully with specification.

ACCEPT AS IS	REPAIR	SCRAP	REQ'D CHANGE	RTV	MRB	ENG	CUSTOMER / ANI	QA	DEFECT CODE
—	—	52 51 ✓	✓	—	NAME	DATE	Aug 09/06	Aug 8/06	

Let's go
 2.7 Aug 9/06
 VELAN
 QA Manager

VELAN Inc.
7007 Côte de Liesse
Montreal, Quebec
Canada H4T 1G2

Tel: (514) 748-7743
Fax: (514) 748-8635
Web: www.velan.com



TRANSMITTAL

台電核能安全處		
外	AUG 10 2006	文
G核安06080178		

To: Dr. Sheldon Chow,
Manager of Taiwan Operations
Stone & Webster Asia, Inc.
8th Floor Building C. No. 90, Sec. 1
Hsin-Tai 5th Road
Hsichih, Taipei County, Taiwan, R.O.C.

No: VI-SWT-MS019A1-0156

Date: Aug 9, 2006

Response Required: Yes

Response Due: Aug 23, 2006

C.C.: Mr. M.S. Chang
Nuclear Safety Department
Taiwan Power Company
242 Roosevelt Road, Section 3
Taipei, Taiwan, R.O.C.

	Technical
	Commercial
√	Q.A.

Subject: Lungmen Project, Fourth Nuclear Power Plant Units 1 & 2
Contract No. 8749111M019A1
Carbon and Alloy Steel Valves (ASME III) Gate & Globe

Reference: 1. Specification 874-0033 paragraph 3.3.6.1.3.3 Critical Pitting Test CN-3MN Casting
2. Velan Non Conformance Report 30283

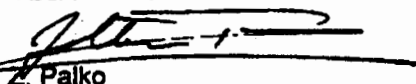
Dear Sirs:

Although our casting supplier has certified the CN-3MN castings as meeting contract requirements, Velan has learned that they have omitted performing the critical pitting test at 49 degrees centigrade as required by Reference 1. All Unit 1 valves are complete however there is no test material remaining from any of the heats to perform the missing test. This non conformance affects all valves for Unit 1 and 2.

Regretfully we are submitting our non conformance report, Reference 2, with applicable material test reports for TPC consideration for acceptance.

Yours very truly,

VELAN INC.


Z. Palko
Manager, Quality Assurance



DEVIATION REPORT

DR 30283

1/6

PART NUMBER		PART CODE		DESCRIPTION			
F10-0064C-49RT		—		BODIES & BONNETS			
DRAWING NUMBER / REV		MATERIAL SPEC		QCI / REV		NCLASS	ISO
X012-273060-N01/8		SA351 CN-3MN		4216 7		3	—
VALVE CUSTOMER		SHOP ORDER #		VENDOR NAME		VENDOR CODE	
TPC		—		AMPO		—	
VELAN ORDER #		ITEM		VELAN PURCHASE ORDER #		ITEM	
X012-273060-N		ALL		206562,210613		—	
TOTAL QUANTITY	QTY INSPECTED	ACC	REL	HEAT CODE #		SERIAL NO.	
52 BONNET 51 BODY	ALL	0	ALL	ATTACHED		—	

DEVIATION

REQUIRED BY DWG / SPEC

CONTRACT 8749111M01941
 SPEC 8TH-M0033 para 3.3.6.1.3.3
 CRITICAL FITTING TEST (CPT)
 ASTM G48 METHOD C @ 49°C

ACTUAL

FOUNDRY DID NOT
 PERFORM CPT ON CN-3MN
 UNIT 1: 24 PCS } BODIES AN.
 UNIT 2: 24 PCS } BONNETS

(plus spare castings)

INSPECTOR / DATE	QC MANAGER / DATE	PURCHASED PART	YES	WORK CENTER	—
2.7 AUG 8/06	Aug 8/06	MANUFACTURED PART	—	OPERATOR	—

DISPOSITION

Velan proposes acceptance of this non
 conformance based on (a) low design temperature
 (b) calculated CPT well above 49°C for all
 castings (c) acceptable IGT A262 Practice A

ACCEPT AS IS	REPAIR	SCRAP	REQ'D CHANGE	RTY	MRB	ENG	CUSTOMER / ANI	QA	DEPT CODE
—	—	—	✓	—	NAME	Aug 09/06		Aug 8/06	
					DATE				



Stone & Webster Asia, Inc.

Ms. Barbara Alleyne
Sales Order Administrator
Velan Inc
7007 Cote de Liesse, Montreal, Quebec
Canada H4T 1G2
Fax: +1-514-748-8635
Email: balleyne@velanvalve.com
(Total pages: 2)

August 17, 2006
JO 13016 /T2.1/MBC
SWT-VI-MS019A1-000155
Response Required: Yes
Response due - August 27, 2006

SUBJECT: LUNG MEN NUCLEAR POWER PROJECT UNITS 1 AND 2
CONTRACT NO. 8749111M019A1 CARBON AND ALLOY STEEL, VALVES (ASME III)
PART A - GLOBE, NEEDLE AND ANGLE VALVES & PART B - GATE VALVES
VELAN NON CONFIRMATION REPORT 30283

REFERENCE: 1. VI-SWT-MS019A1-0156, dated 8/9/2006

Dear Ms. Alleyne,

This letter provides the comments to the subject NCR transmitted via the Reference 1, regarding the omitted critical pitting test for valve material CN3NM.

The specimens for CN3NM Critical Pitting Tests shall be obtained from the test bars, same as the specimens used for other material tests. Why does Velan think the test bars are unavailable? Please clarify.

The design service temperature of 104°F and 126°F for these valves is within the expected CPT temperature if the material has been heat treated properly and processed so as to not degrade its corrosion performance. The specification required CPT temperature test (specification requirement of 120°F min) would insure this corrosion performance has been retained.

Use of the ASTM A262 standard is not appropriate for this material because it is very difficult to sensitize this material due to its nitrogen content and low carbon content. The corrosion performance of this material can be degraded by segregation of alloy during casting and a less than effective heat-treatment to resolution the alloy or via the formation of sigma phase. ASTM A262 would not detect this. Therefore information obtained from the ASTM 262 test method(s) are not relevant to this materials corrosion performance.

We assume the calculation method identified in the non-conformance report is the calculation of a PREN number for this alloy. It is agreed that a PREN calc. would demonstrate a high resistance to pitting; but the PREN calc. only uses composition in its calculation, there is no standard accepted method of calculation and this calculation does not take into account the degrading effects of chemical inhomogeneity and the presence of intermetallic phases. An example is the degradation of corrosion resistance of the 300 Series stainless steels as a result of sensitization even though the composition of the alloy does not change. Using the PREN calc, a solution annealed 300 Series stainless steel has the same corrosion resistance as a sensitized 300 Series stainless steel.

Therefore S&W would recommend the CPT test be performed on samples obtained from heat-treated test bars produced during the casting process. Test bars are normally produced as part of the production process and should have received the same heat-treatments as the actual castings. These test bars would

August 17, 2006
JO 13016 /T2.1/MEC
SWT-VI-MS019A1-000155

have been machined into tensile specimens to confirm the material had the required mechanical properties.

If you have any questions regarding this letter, please contact Sean B. Tsai at 886-2-26966966 or by e-mail at sb.tsai@stoneweb.com.tw.

Sincerely yours,



Thomas P. Tonden
Project Engineering Manager

TPT: sbt0973

cc: Mr. S. H. Liao - PM, DNE TPC

PI

VELAN Inc.

7007 Côte de Liesse
Montreal, Quebec
Canada H4T 1G2

Tel: (514) 748-7743
Fax: (514) 748-8635
Web: www.velan.com



Mr Thomas Tonden,
Project Engineering Manager
Stone & Webster Asia, Inc.
8th Floor Building C. No. 90, Sec. 1
Hsin-Tai 5th Road
Hsichih, Taipei County, Taiwan, R.O.C.

No: VI-SWT-MS019A1-0177

Date: December 14, 2006

Response Required: Yes

	Technical
	Commercial
√	Q.A.

Subject: Lungmen Project, Fourth Nuclear Power Plant Units 1 & 2
Contract No. 8749111M019A1
Carbon and Alloy Steel Valves (ASME III) Gate & Globe

Reference: 1. Specification 874-0033 paragraph 3.3.6.1.3.3 Critical Pitting Test CN-3MN Casting
2. VI-SWT-MS019A1-0156 dated 8/9/2006
3. SWT-VI-MS019A1-000155 dated 8/17/2006
4. Bodycote Report 06-256318 Critical Pitting Test ASTM G48, Heat H9469 **
5. Bodycote Test Report 06-25631MT1 Intergranular Corrosion ASTM A262 Practice A, Heat H9469 **
6. Bodycote Report 06-244073 Critical Pitting Test seat 2EUR, wedge 2FBK**
7. AMPO e mail September 26, 2006 **

Dear Sirs:

Since the foundry had no material remaining to perform the Critical Pitting Test (CPT) specified by Reference 1, a 3" bonnet casting CN3MN heat number H9469 was sacrificed for test purposes and forwarded to an independent laboratory for tests specified by the design specification. As stated in SWT letter Reference 3, Bodycote report Reference 5 supports the fact that it is not appropriate to apply A262 Practice A standard to this material however since it was specified in the design specification, Velan had no other choice but to comply. From the result of the test and statement in Reference 3, it appears that this test should not have been specified in Reference 1. More suitable tests for this material would be G28 Practice A, A262 Practice E or F.

On separate test samples from the same bonnet, ASTM G48 CPT at 49C was conducted on six coupons with results indicated on report Reference 4. The PREN calculation for heat H9469 was 40.4 and calculated critical pitting temperature 62.1 degree C. Two of the six coupons were pitted/failed and four were acceptable. We were also in contact with the foundry during this period and requested further tests on CN3MN materials. The foundry was processing the same material for a different customer and had the G48 Practice C performed by an independent laboratory, Inasmet. This test also failed. The chemistry of the material tested by Inasmet is listed on Reference 7. The PREN for this material was 44.7 and critical pitting temperature 72.4 degree C. It appears from these failures that the test specified may be suitable for N08637 but perhaps it may be too severe for J94651, the UNS designation for SA351 CN3MN. Proper solution annealing of the casting is not an issue since due to thickness less than 30 mm and a suitable shape for rapid cooling, optimum solution annealing is possible without any difficulty.

Due to Amendment 8 of the contract and the revision of Reference 1, we were obliged to perform retroactively the G48 test on N08637 materials from which valve seats and wedges were manufactured. When Amendment 8 was received most valves were complete with seats welded in the bodies but we had sufficient material remaining for the test and decided not to refuse Amendment 8 as it imposed G48 on forged N08637.

VI-SWT-MS019A1-0177
December 14, 2006

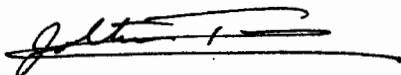
Samples from both 5 inch diameter bars were sent to Bodycote for the G48 critical pitting test and both passed the test (Ref 6). The chemistry of cast CN3MN bonnet material being essentially to the same UNS requirement as forged N08637 that we used for seats and wedges, we are puzzled why castings fail and forgings pass this test. There is ample information on forged N08367 and it's corrosion properties and suitable corrosion tests to apply however little of use or nothing can be found on the cast version J94651 and if G48 Method C is recommended. Perhaps due to the manufacturing process used for both material types, forged N08637 has better grain structure properties than cast CN3MN.

In order to purchase new castings from a different foundry, we have received quotes from a US based foundry, Atlas Castings & Technology, however they refused to accept the CPT requirement and offered to provide test bars only and would not guarantee the G48 test results. It seems that this cast grade does not have a reliable reputation when faced with corrosion testing to G48 Method C. TPC has purchased other valves for the Lumgmen Project made from CN3MN and we would appreciate hearing results of the corrosion tests reported by other foundries and valve manufacturers.

We await your comments concerning the disposition of these valves and hope to hear from TPC/SWT on how other valve manufacturers managed to comply with this seemingly impossible condition of the design specification.

Yours very truly,

VELAN INC.



Z. Palko
Manager, Quality Assurance

** Attached



Stone & Webster Asia, Inc.

Ms. Barbara Alleyne
Sales Order Administrator
Velan Inc
7007 Cote de Liesse, Montreal, Quebec
Canada H4T 1G2
Fax: +1-514-748-8635
Email: balleyne@velanvalve.com
(Total pages: 3+)

January 18, 2007
JO 13016 /T2.1/MEC
SWT-VI-MS019A1-000177
Response Required: Yes
Response due – January 31, 2007

SUBJECT: LUNG MEN NUCLEAR POWER PROJECT UNITS 1 AND 2
CONTRACT NO. 8749111M019A1 CARBON AND ALLOY STEEL, VALVES (ASME III)
PART A – GLOBE, NEEDLE AND ANGLE VALVES & PART B – GATE VALVES
VELAN NON CONFIRMATION REPORT 30283

REFERENCE: 1. VI-SWT-MS019A1-0177, dated 12/14/2006

Dear Ms. Alleyne,

In response to Velan's disposition and comment on the subject NCR transmitted via the Reference 1, regarding the critical pitting test for valve material CN3NM, S&W's further comments are as below:

S&W SUMMARY RESPONSE

1. The first paragraph of Reference 1 states that (concerning A262 Practice A): "From the result of this test and statement in SWT-VI-MS019A1-000155, it appears that this test should not have been specified in Specification 874-M0033".

S&W Response: This statement is not germane to this discussion. The test failure under question is G48 Practice C, not A262 Practice A. (See detailed discussion A below)

2. The second paragraph of Reference 1 states that "It appears from these failures that the test specified (G48 Practice C) may be suitable for N08367 but perhaps it may be too severe for J94651, the UNS designation for SA351 CN3MN".

S&W Response: Our material specialist, Art Stein, who is a well recognized expert in the 6% moly materials, has reiterated that this is an appropriate test for a properly produced and treated casting of J94651 (SA351 CN3MN). (See detailed discussion B below)

3. The next-to-last paragraph of Reference 1 states that "...a US based foundry....refuse to accept the CPT requirementthis cast grade does not have a reliable reputation when faced with corrosion testing.....TPC has purchased other valves for the Lungmen Project made from CN3MN and we would appreciate hearing results of the corrosion test reported by other foundries and valve manufacturers"

S&W Response: We have investigated other valves supplied under the MS019A2 and MS023 (MOV) contracts and have found evidence of J94651 (SA351 CN3MN) castings

January 18, 2007
JO 13016 /T2.1/MEC
SWT-VI-MS019A1-000177

passing the G48 Practice C CPT test. A sample of these test results is provided in Appendix II below.

DETAILED DISCUSSION A

Velan's original proposed disposition to the NCR, as submitted via VI-SWT-MS019A1-0156 was that "Velan proposes acceptance of this non-conformance based on (a) low design temperature (b) calculated CPT well above 49 °C for all casting and (c) acceptable IGT A2562 Practice A.

The response to these addressed points are as shown below:

(a) low design temperature

The design service temperature of 104°F and 126°F for these valves is within the expected CPT temperature if the material has been heat treated properly and processed so as to not degrade its corrosion performance. The specification required CPT temperature test (specification requirement of 120°F min) would insure this corrosion performance has been retained.

(b) calculated CPT well above 49 C for all castings

The calculation method identified in the non-conformance report seems to be the calculation of a PREN number for this alloy. It is agreeable a PREN calc. would demonstrate a high resistance to pitting; but the PREN calc. only uses composition in its calculation, there is no standard accepted method of calculation and this calculation does not take into account the degrading effects of chemical in-homogeneity and the presence of inter-metallic phases. An example is the degradation of corrosion resistance of the 300 Series stainless steels as a result of sensitization even though the composition of the alloy does not change. Using the PREN calc, a solution annealed 300 Series stainless steel has the same corrosion resistance as a sensitized 300 Series stainless steel.

(c) acceptable IGT A262 Practice A.

Use of the ASTM A262 standard is not appropriate for this material because it is very difficult to sensitize this material due to its nitrogen content and low carbon content. The corrosion performance of this material can be degraded by segregation of alloy during casting and a less than effective heat-treatment to resolution the alloy or via the formation of sigma phase. ASTM A262 would not detect this. Therefore information obtained from the ASTM 262 test method(s) is not relevant to this materials corrosion performance. The intent of this statement is that "Use of the ASTM A262 standard is not appropriate for PREDICTING CORROSION IN this material". The A262 test called for in paragraph 3.3.6.13.1 of the spec is a different test for a different purpose and has nothing to do with the CPT testing called for in paragraph 3.3.6.1.3.3. The relevant spec paragraphs are shown in Appendix I below

January 18, 2007
JO 13016 /T2.1/MEC
SWT-VI-MS019A1-000177

DETAILED DISCUSSION B

The critical pitting corrosion temperature test is the easiest test to pass when compared to the critical crevice corrosion test. Typical critical pitting temperatures for these materials should be above 140°F. If the material can not pass the 49°C (120°F) requirement then there is something wrong with either the material composition or the processing the castings undergo. Other casting vendors have had no problem passing this test requirement.

Possible reasons for the inability of this material to pass this critical pitting temperature test are lack of homogeneity in the casting, chromium or molybdenum depletion from the surface or an inadequate solution annealing process.

If you have any questions regarding this letter, please contact Sean B. Tsai at 886-2-26966966 or by e-mail at sb.tsai@stoneweb.com.tw.

Sincerely yours,



Thomas P. Tonden
Project Engineering Manager

TPT: sbt1088

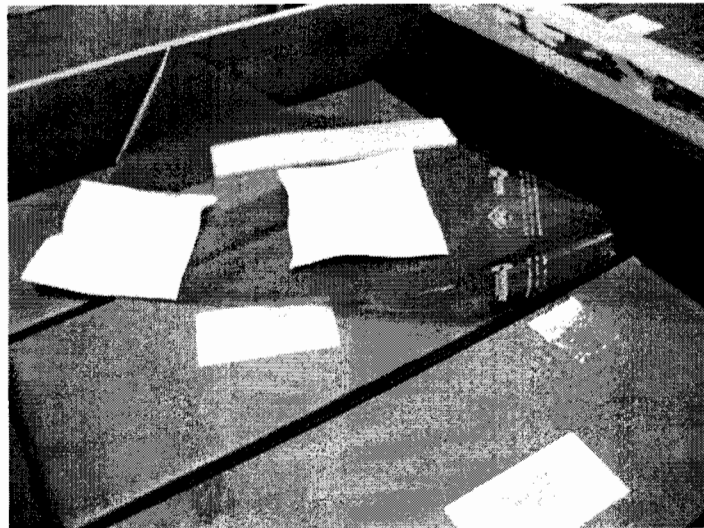
Enclosure: 1. Appendix I – Relevant Specification paragraphs
2. Appendix II - A sample of G48 Practice C CPT test results

cc: Mr. S. H. Liao - PM, DNE TPC

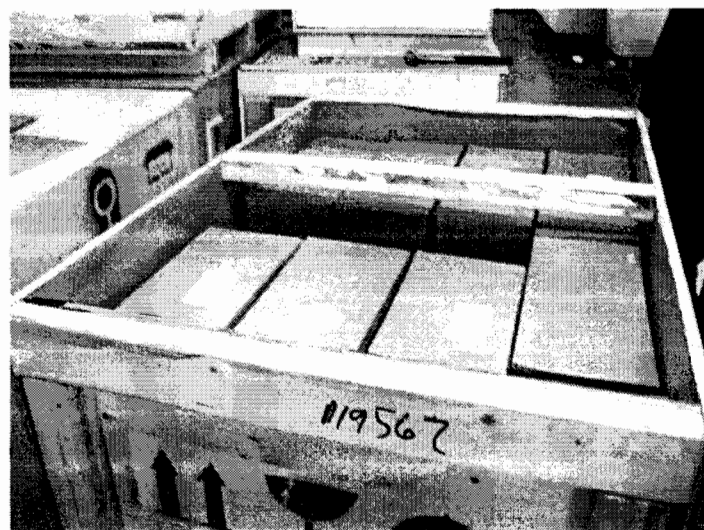
龍門計劃MS019A1採購案品質查驗



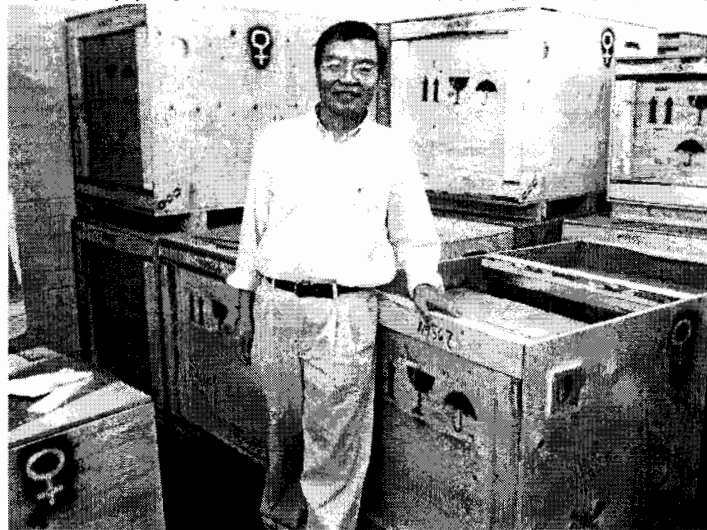
1. 拜會Mr. Velan (CEO)及Mr. Sargent (VP/PM)



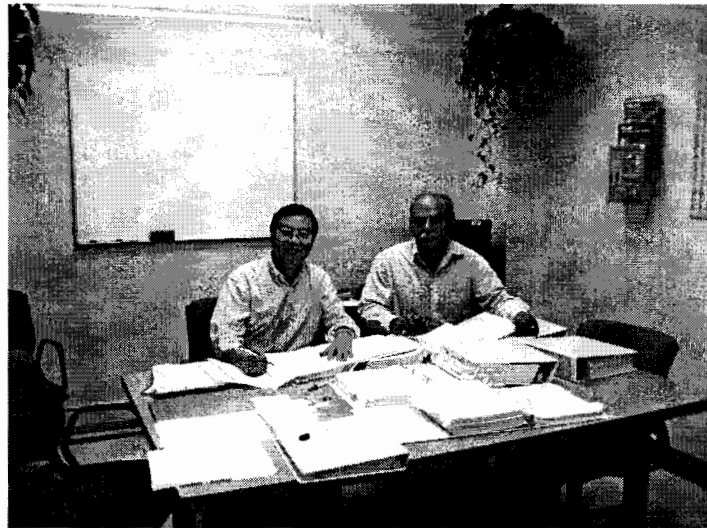
2. 查驗Valve 內部包裝



3. 查驗Valve Packing



4. 查驗Valve Packing



5. 審查QRP (Quality Record Package)

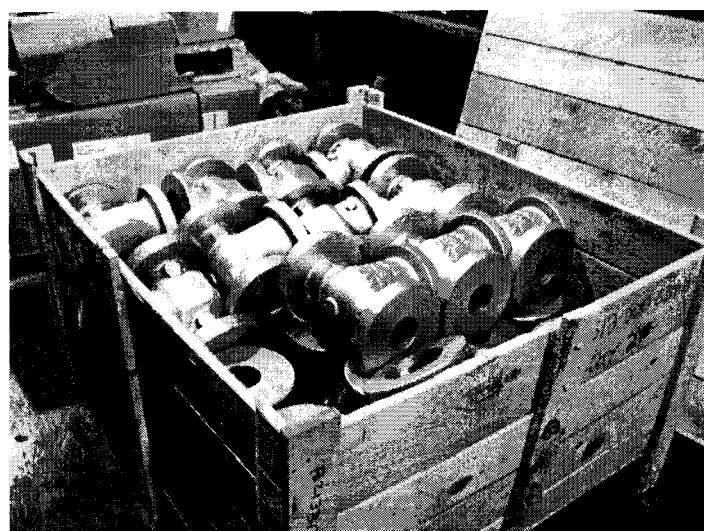


6. 查驗Valve Spare Parts Packing

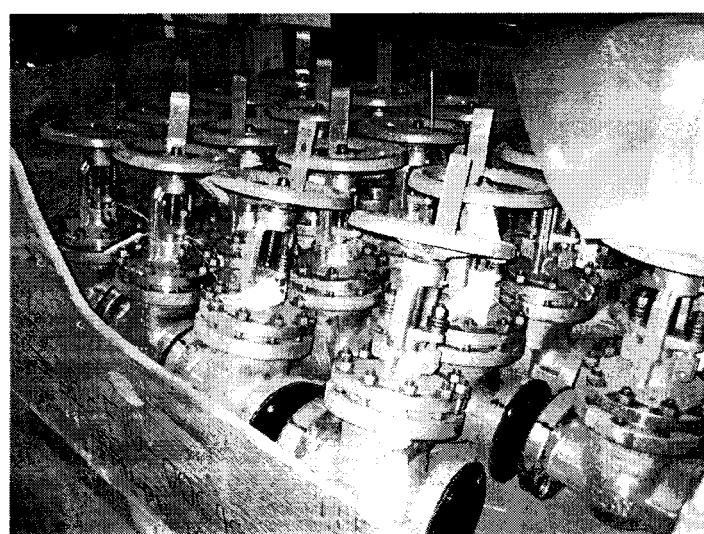
龍門計劃MS019A1採購案品質查驗



7. 查驗Spare Parts包裝Shipping Mark



8. NCR案新購CN3MN材質Valve Body鑄件



9. NCR案廢棄之3吋 150# Gate Valves