ATTACHMENT 1

MATERIAL RECEIPT INSPECTION AND CONTROL SUMMARY

Receipt Inspection

PQC-09 Section	Receiving Inspection Responsibility
3.1	Quality Control Supervisor assigns qualified personnel to perform receiving inspections.
3.1.3	For Quality Class I and ASME procurements, the Receiving QC Inspector verifies the vendor is listed in the Supply System Evaluated Suppliers List (ESL).
3.1.7; Attachments 5.3 and 5.4	QC Inspector performs receiving inspection. Inspector verifies that identification and marking are in accordance with codes, specifications, drawings as indicated in the Purchase Order (including head markings for Grade and Manufacturer symbols).
3.1.8	For items which have dimensions or other quantitative attributes (i.e., hardness, thread size etc.) specified in the P.O./Specification, documents the results of test/inspection reports submitted with the material that confirm these attributes.
3.1.11; Attachment 5.5	QC Inspector reviews Certified Material Test Reports (CMTRs), Certificates of Conformance and other test reports for chemical and physical properties; accepted to the specification required by the Purchase Order.
3.1.15	QC Inspector indicates acceptance of documentation by stamp, signature, and date.
3.1.17 through 3.1.21	When item and documentation is determined to be satisfactory, the QC Inspector completes a green QC accept tag documenting all pertinent data. For ASME procurements, the inspector notifies the ANI that material and documentation are available for his review (the ANI may indicate concurrence by signature on the tag).
	QC Inspector attaches accept tag and notifies Warehouse personnel that item is ready for storage or release.
3.2	If discrepancy is identified, attaches a "hold tag" and segregates item(s) if practical. The QC Inspector initiates a Plant Deficiency report.

NOTE

WNP-2 Procurement Specification 10434 for procurement of Commercial Grade "Structural Nuts and Bolts, ASTM A307/A325/A490/A563" requries on site hardness testing of three samples of each lot of bolts or nuts in accordance with ASTM F606. This is in addition to other receiving inspection requirements as specified in the procedure PQC-09.

Control of Material

The following procedures specify internal controls utilized during storage and issuance from stock:

PPM 1.15.2 - "Material, Equipment, Parts and Supplies Procurement", Rev. 0 PPM 1.15.8 - "Warehousing", Rev. 1

CPP 8.4.31 - "Materials and Equipment Identification and Coding", Rev. 1

CPP 8.4.51 - "Warehouse Withdrawals and Returns", Rev. 1 NOS-27 - "Procurement and Storage Control", Rev. 3

Warehousing Activity

Acceptance of Shipment a.

PPM 1.15.8 Inspects for damage

2. Placement in receiving hold area

Commercial Receiving Process b.

> 1. Match with procurement documentation and determine Quality Class.

2. Initiate a material receiving report, noting any changes from the procurement requirements.

3. Tag or mark items or containers to identify to Purchase Order.

Notify Quality Control on all Quality Class I and CG items received in order to perform a receipt inspection per PQC-09.

Material Identification, Coding and Storage Control C.

1. All inventory items are identified with tags.

Storage locations are entered in the Materials

Management System.

Inventory items are entered into the Materials Management System for material planning, inventory and management control.

Material is stored so as to meet or exceed the

storage level requirements.

General housekeeping is checked periodically to 5. assure that item identity is being maintained and specific storage requirements are met.

Material Withdrawal d.

> Material issues from inventory are controlled through the use of authorized store orders.

Store orders specify quantity request, part number, description, matcode number or other information as required.

Delivery Manifests document deliveries made by the Warehouse for direct purchase items (other than inventory).

PPM 1.15.8

CPP 8.4.31

PPM 1.15.8

PPM 1.15.8

CCP 8.4.51

PPM 1.15.8

CPP 8.4.51

PPM 1.15.8

PPM 1.15.8, NOS-27

A325 bolts and nuts are available in three types (i.e. Type 1, 2 or 3). When the bolt type is not specified, either Type 1 or Type 2 may be supplied at the option of the manufacturer. Type 3 bolts are used when atmospheric corrosion resistance is required. Review of the test results indicates that the Type A325 bolts and nuts have not been properly designated by specific type or grade into the matcode system. This discrepancy has no safety significance due to identical material strength requirements for all three types of bolts and nuts. Additionally design specifications do not require use of A325 Type 3 bolts and nuts. Thus substitution of Type 3 bolts and nuts for Type 1 or 2 application has no impact on plant safety.

Sample N1C was reanalyzed due to one chemical element being out of specification. The test results indicate the nut to be A563 Grade C3 which coincides with the required markings on the nut. The Purchase Order specified the nut to be A325 Type C3 which was subsequently revised to specify A563 Grade C3. Certificate of Compliance from the vendor certifies the nut to be either A325 Type 3 or A563 Grade C3, since both these types of nuts are interchangeable. The matcode is being changed to specify these nuts as A563 Grade C3 instead of A325 Grade B. This discrepancy has no safety significance as different types of A325 nuts and A563 Grade C3 nuts have the same mechanical strength.

Samples N1B and N1D ($\frac{1}{2}$ "-13 nuts) were procured and certified as A325 Type 3/A563 Gr. C3 heavy hex nuts and were matcoded as A325 Gr. B heavy hex nuts. Markings on these nuts do not meet the ASTM marking requirements for A325 Type 3/A563 Gr. C3 heavy hex nuts. Recheck confirmed that the nuts are hex series and not heavy hex as certified. The regular hex series would help explain the lack of required marking. The chemical analysis shows conformance to A325 Type 1,2 and 3 nuts.

Initial chemical analysis results on some samples came in with one chemical element out of specification (B1K, B2C and B2E). Chemical reanalysis of these samples confirmed compliance with their required material specifications.

Initial test results and reanalysis of sample N2A confirmed the nut to be A194 Grade 4 which agrees with the Purchase Order and ASTM marking requirements. The matcode is being changed to classify these nuts as A194 Grade 4 instead of A194 Grade 7. Substitution of a Grade 4 nut for a Grade 7 nut will not affect the design considerations as A194 Grades 2H, 3, 4 and 7 all have to meet the same proof loads. Moreover this is a Quality Class 2 nut and could not be used for safety related applications.

Sample B2F was identified in the matcode as A354 Grade BC while the test results indicate it to be a carbon steel type A307 or ANSI 18.6.3. The Purchase Order did not specify any ASTM Specification other than screws to be zinc chromate carbon steel. These machine screws are not safety related and are not used in any pressure boundary. These screws are being excessed.

Non-safety related sample B2D is an A193 Grade B8 stud, 7/8" - 11 X 6", for which initial measured hardness test of R $_{\rm C}$ 27.5 (average) exceeded the maximum hardness for a B8 Class 1 material. Due to the high hardness a tensile test was performed to check if the material had been strain The tensile strength was 120,000 psi, the yield strength was hardened. 68,400 psi and 1/4t hardness was R_C 30.5. This yield strength falls below the yield for a Class 2 strain hardened material. An additional stud from the same lot was tested and produced a tensile strength of 121,800 psi, yield strength of 80,800 psi and $R_{\rm c}$ 31.0 average hardness. Although the stud was not marked as a Class 2 Strain hardened material, the physical properties show that it possibly is. Furthermore, the ASTM Specification states that A193 Austenitic Stainless Steel grades in the strain hardened condition may not show uniform properties throughout the section in sizes over 3/4". This may explain the lower yield strength (68,400 psi) exhibited in the tensile test of the first sample. The yield strength of these studs is below the 90,000 psi threshold for stress corrosion cracking concerns, therefore the use of these studs will not present a problem in the plant. Additionally, the stud is non-safety related so it would not be used for ASME or safety related applications.

ATTACHMENT 3

SAFETY RELATED

BOLTS, STUDS, CAP SCREWS

No.	Sample I.D.#	Lab I.D.#	Grade (per matcode)	Size (per matcode)									
1	WNP-2-25116392	B1C	A325 Gr. B	3/4"x5"-10									
2	WNP-2-25120956	B1D	SA193 Gr. B7	1 1 "x11"-8									
3	WNP-2-25120956	B1E	SA193 Gr. B7	1 1 "x11"-8									
4	WNP-2-25114943	B1A	A193 Gr. B7	3/4"x10"-10									
5	WNP-2-25112920	B1K	SA193 Gr. B8	7/8"x4-3/4"-9									
6	WNP-2-25127823	він	A490 Tp. 1	1 1 "x4"-7									
7	WNP-2-25131925	B1F	A320 Gr. L7	1-3/4"x13½"-8									
8	WNP-2-25114593	B1I	A307 Gr. B	1 1 "x6 1 "-7									
9	WNP-2-25114593	B1J ⁽	A307 Gr. B	14"x64"-7									
10	WNP-2-25114593	B1L	A307 Gr. B	14"x64"-7									
	NUTS												
No.	Sample I.D.#	Lab I.D.#	Grade (per matcode)	Size (per matcode)									
No. 1	Sample I.D.# WNP-2-25207154	Lab I.D.#											
			(per matcode)	(per matcode)									
1	WNP-2-25207154	N1B	(per matcode) A325 Gr. B	(per matcode)									
1 2	WNP-2-25207154 WNP-2-25206370	N1B N1A	(per matcode) A325 Gr. B A194 Gr. 4	(per matcode) ½"-13 1½"-8									
1 2 3	WNP-2-25207154 WNP-2-25206370 WNP-2-25206370	N1B N1A N1G	(per matcode) A325 Gr. B A194 Gr. 4 A194 Gr. 4	(per matcode) ½"-13 1½"-8 1½"-8									
1 2 3 4	WNP-2-25207154 WNP-2-25206370 WNP-2-25206370 WNP-2-25210423	N1B N1A N1G N1S	(per matcode) A325 Gr. B A194 Gr. 4 A194 Gr. 4 A194 Gr. 2H	(per matcode) ½"-13 1½"-8 1½"-8 3/4"-10									
1 2 3 4 5	WNP-2-25207154 WNP-2-25206370 WNP-2-25206370 WNP-2-25210423 WNP-2-25213370	N1B N1A N1G N1S N10	(per matcode) A325 Gr. B A194 Gr. 4 A194 Gr. 4 A194 Gr. 2H SA194 Gr. 2H	(per matcode) ½"-13 1½"-8 1½"-8 3/4"-10 7/8"-9									
1 2 3 4 5	WNP-2-25207154 WNP-2-25206370 WNP-2-25206370 WNP-2-25210423 WNP-2-25213370 WNP-2-25206405	N1B N1A N1G N1S N1O	(per matcode) A325 Gr. B A194 Gr. 4 A194 Gr. 4 A194 Gr. 2H SA194 Gr. 2H A194 Gr. 2H	(per matcode) ½"-13 1½"-8 1½"-8 3/4"-10 7/8"-9 1½"-7									
1 2 3 4 5 6 7	WNP-2-25207154 WNP-2-25206370 WNP-2-25206370 WNP-2-25210423 WNP-2-25213370 WNP-2-25206405 WNP-2-25210192	N1B N1A N1G N1S N1O N1E	(per matcode) A325 Gr. B A194 Gr. 4 A194 Gr. 4 A194 Gr. 2H SA194 Gr. 2H A194 Gr. 2H A194 Gr. 2H	(per matcode) ½"-13 1½"-8 1½"-8 3/4"-10 7/8"-9 1½"-7 1½"-8									
1 2 3 4 5 6 7 8	WNP-2-25207154 WNP-2-25206370 WNP-2-25206370 WNP-2-25210423 WNP-2-25213370 WNP-2-25206405 WNP-2-25210192 WNP-2-25206321	N1B N1A N1G N1S N1O N1E N1T	(per matcode) A325 Gr. B A194 Gr. 4 A194 Gr. 2H SA194 Gr. 2H A194 Gr. 2H A194 Gr. 2H A194 Gr. 2H A194 Gr. 2H	(per matcode) ½"-13 1½"-8 1½"-8 3/4"-10 7/8"-9 1½"-7 1½"-8 1½"-6									

La	b ID#:
Fa	stener Description: - Bolt 3/4" x 5"
De	scription of Sample Stock Location: 0207533A0
Ma	terial Specification as Documented by Licensee Records: A325 Gr. B
No	te: Action taken to change description to Type 1
He	ad Marking (Specification and Manufacturer): A325 LE
	ass/Procurement Level: QC1
Ge	neral Plant Application (e.g., Pressure Boundary, Structural):
•	Structural
۷e	ndor: Cardinal Industrial Products, 38731 W. Oquendo, Las Vegas, NV
QA	Requirements Imposed on Vendor: C of C
	mments: Safety related - meets specifications of A325 Type 1.

Licensee Repr	esentative:	•		
Signature	Rkane		Date_	1-8-88

NRC Representative:

Signature Date 1/9/88





Mechanical Analysis

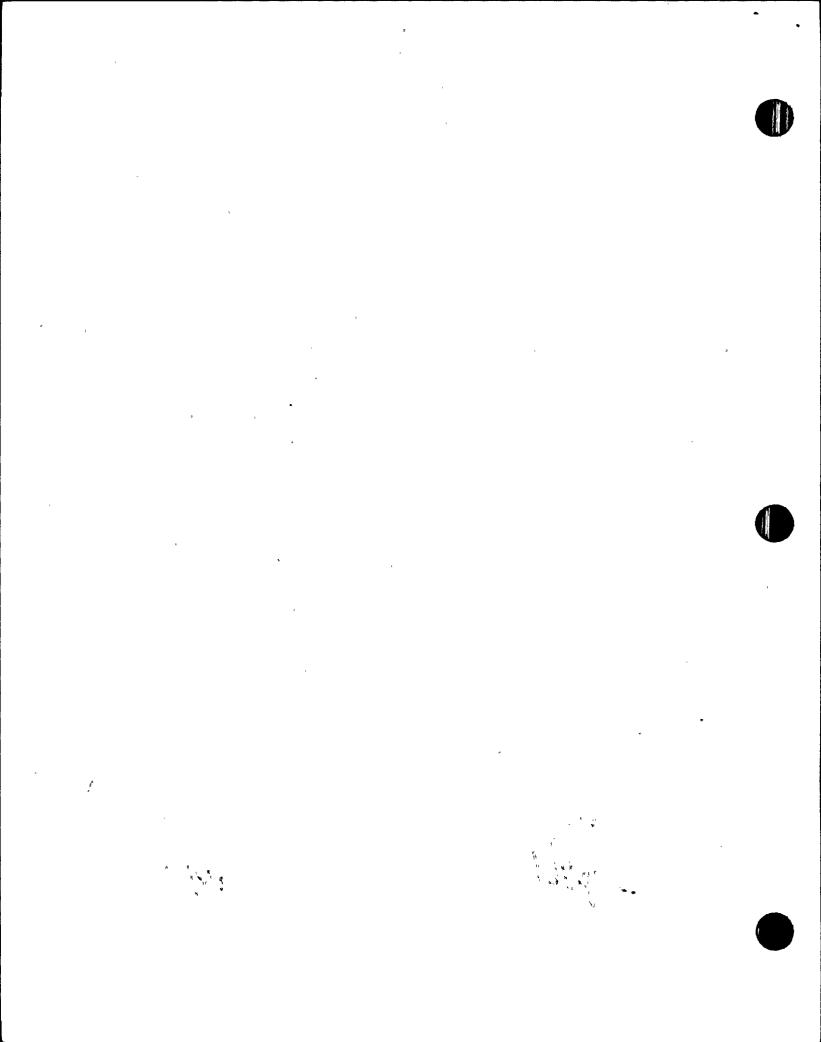
Chemical Analysis

ID#	Hardness	UTS	0.2% YS*	С	Mn	Si	P	S	Cr	Ni	Мо	Cu	Ti	Y
BIC	N/A	N/A	28,400 1b*	^0.44	0.93	0.19	0.010	0.015	0.18	0.01	0.06	0.01	0.10	≺0.01

Note: UTS - Ultimate Heat Strength; YS - Yield Strength; C - Carbon; Mn - Manganese; Si - Silicon; P - Phosphorus; S - Sulfur; Cr - Chromium; Ni - Nickel; Mo - Molybdenum; Cu - Copper; Ti - Titanium; Y - Yanadium

•
Sample ID#: WNP-2-25120956
Lab ID#: B1D, B1E
Fastener Description: Stud. 1%" x 11"
Description of Sample Stock Location: 0209E54
Material Specification as Documented by Licensee Records:
SA193 Gr. B7 ASME III/3
Head Marking (Specification and Manufacturer): CB7 S12
Class/Procurement Level: 0C1
General Plant Application (e.g., Pressure Boundary, Structural):
Pressure Boundary
Vendor: Coast Industrial Supply Co., 2612 2nd Avenue, Seattle, WA 98121
QA Requirements Imposed on Vendor: C of C and CMTR
Comments: Safety related - meets specifications of SA193 Gr. B7.
'
Licensee Representative:
Signature Right Date 1-8-68
NRC Representative:
20 1/1th





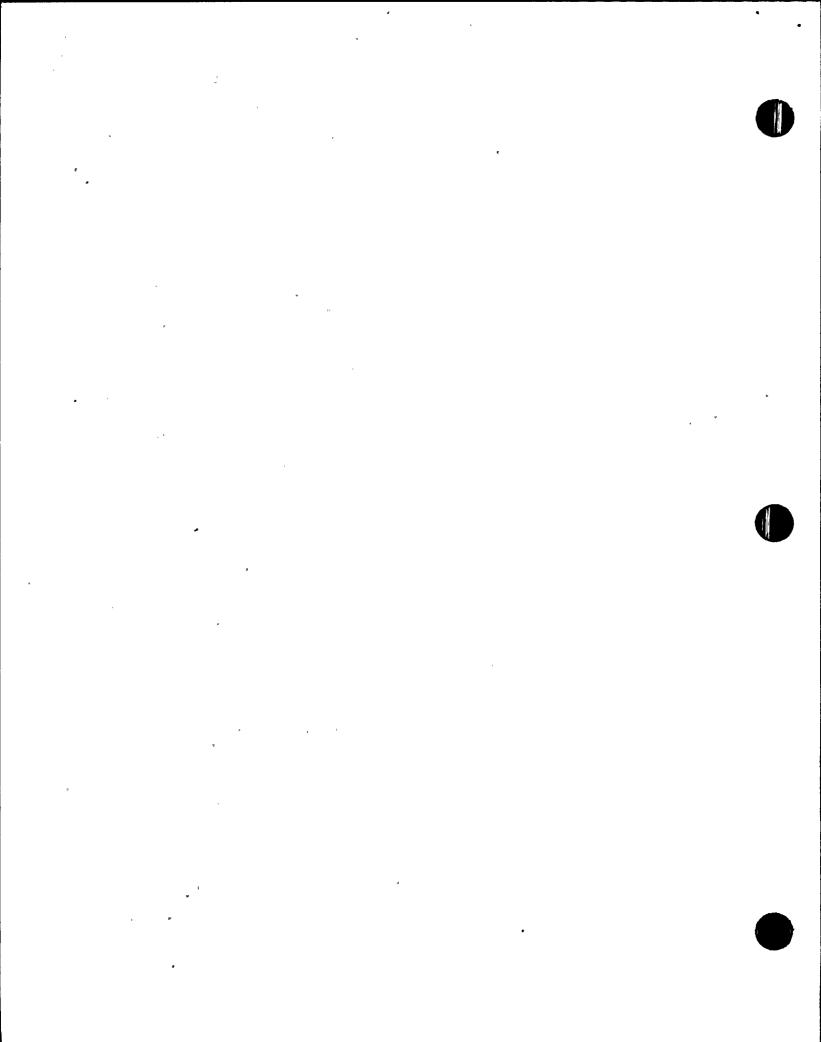


Mechanical Analysis Chemical Analysis

ID#	Hardness	UTS	0.2% YS*	С	Mn	Si	Р	S	Cr	Ni	Мо	Cu	Ti	Y
				-					•					
B1D	N/A	139,200	126,800	0.43	0.86	0.29	0.024	0.012	1.05	0.03	0.16	0.01	<0.01	<0.01

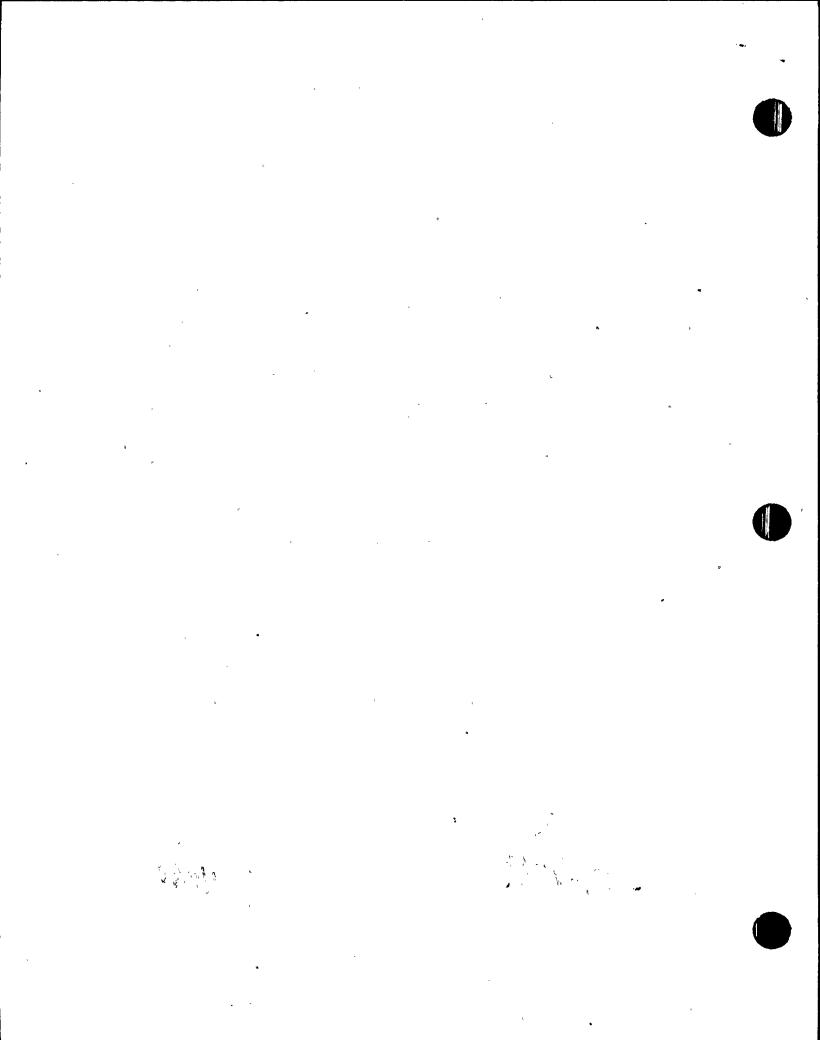
Note: UTS - Ultimate Heat Strength; YS - Yield Strength; C - Carbon; Mn - Manganese; Si - Silicon; P - Phosphorus; S - Sulfur; Cr - Chromium; Ni - Nickel; Mo - Molybdenum; Cu - Copper; Ti - Titanium; V - Yanadium

^{*}Proof Load



Sample ID#: WNP-2-25120956
Lab ID#: B1D, B1E
Fastener Description: Stud. 1%" x 11"
Description of Sample Stock Location: 0209E54
Material Specification as Documented by Licensee Records:
SA193 Gr. B7 ASME III/3
Head Marking (Specification and Manufacturer): CB7 S12
Class/Procurement Level: 0C1
General Plant Application (e.g., Pressure Boundary, Structural):
Pressure Boundary
Vendor: Coast Industrial Supply Co., 2612 2nd Avenue, Seattle, WA 98121
QA Requirements Imposed on Vendor: C of C and CMTR
Comments: Safety related - meets specification of SA193 Gr. B7.
· · · · · · · · · · · · · · · · · · ·
Licensee Representative:
Signature KKONG Date 1-8-88
NRC Representative:
Signature Date 1/8/81











Mechanical Analysis Chemical Analysis

ID#	Hardness	UTS	0.2% YS*	С	Mn	Si	P	S	Cr	Ni	Мо	Cu	Ti	γ
B1E	N/A	140.500	127,000	0:42	0.86	0.29	0.023	0.011	1.03	0.03	0.16	0.01	≺0.01	0.01

Note: UTS - Ultimate Heat Strength; YS - Yield Strength; C - Carbon; Mn - Manganese; Si - Silicon; P - Phosphorus; S - Sulfur; Cr - Chromium; Ni - Nickel; Mo - Molybdenum; Cu - Copper; Ti - Titanium; Y - Vanadium

*Proof Load

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Sample ID#: WNP-2-25114943
Lab ID#: B1A
Fastener Description: Stud 3/4" x 10"
Description of Sample Stock Location: 02074A46A
Material Specification as Documented by Licensee Records: A193 Gr. B7
Head Marking (Specification and Manufacturer): B7 WR5
Class/Procurement Level: QC1
General Plant Application (e.g., Pressure Boundary, Structural):
Pressure Boundary .
Vendor: Coast Industrial Supply Co., 2612 Second Avenue, Seattle, WA 98121
QA Requirements Imposed on Vendor: Certificate of Conformance and CMTR
Comments: Safety related - meets specification of A193 Gr. B7.
Licensee Representative: $\Omega \Omega$
Signature KKANS Date 1-8-88'
NRC Representative:
Signature Date Date

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Mechanical Analysis

Chemical Analysis



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ID#	Hardness	UTS	0.2% YS*	С	Mn	Si	P	S	Cr	Ni	Мо	Cu	Ti	Y	•
														-	
B1A	N/A	142,400	129,600	0.42	0.90	0.26	0.027	0.012	1.03	0.03	0.18	0.01	∠0.01	∠0.01	

Note: UTS - Ultimate Heat Strength; YS - Yield Strength; C - Carbon; Mn - Manganese; Si - Silicon; P - Phosphorus; S - Sulfur; Cr - Chromium; Ni - Nickel; Mo - Molybdenum; Cu - Copper; Ti - Titanium; Y - Yanadium

*Proof Load

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Sample ID#: WNP-2-25112920
Lab ID#: B1K
Fastener Description: Stud 7/8" x 4-3/4"
Description of Sample Stock Location: 3A1B05D03
•
Material Specification as Documented by Licensee Records: SA193 Gr. B8
ASME III/2
Head Marking (Specification and Manufacturer): B83
Class/Procurement Level: QC1
General Plant Application (e.g., Pressure Boundary, Structural):
Pressure Boundary
Vendor: Ray Bristow Co., Inc. 19400 SW Teton Avenue, Tualatin, OR 97062
QA Requirements Imposed on Vendor: C of C CMTR
Comments: Safety related - chemistry analysis redone due to carbon being
slightly out of specifications - results okay per SA193 Gr. B8.
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Licensee Representative:
Signature RRang Date 1-6-88
NRC Representative:
Signature $\sqrt{2/88}$

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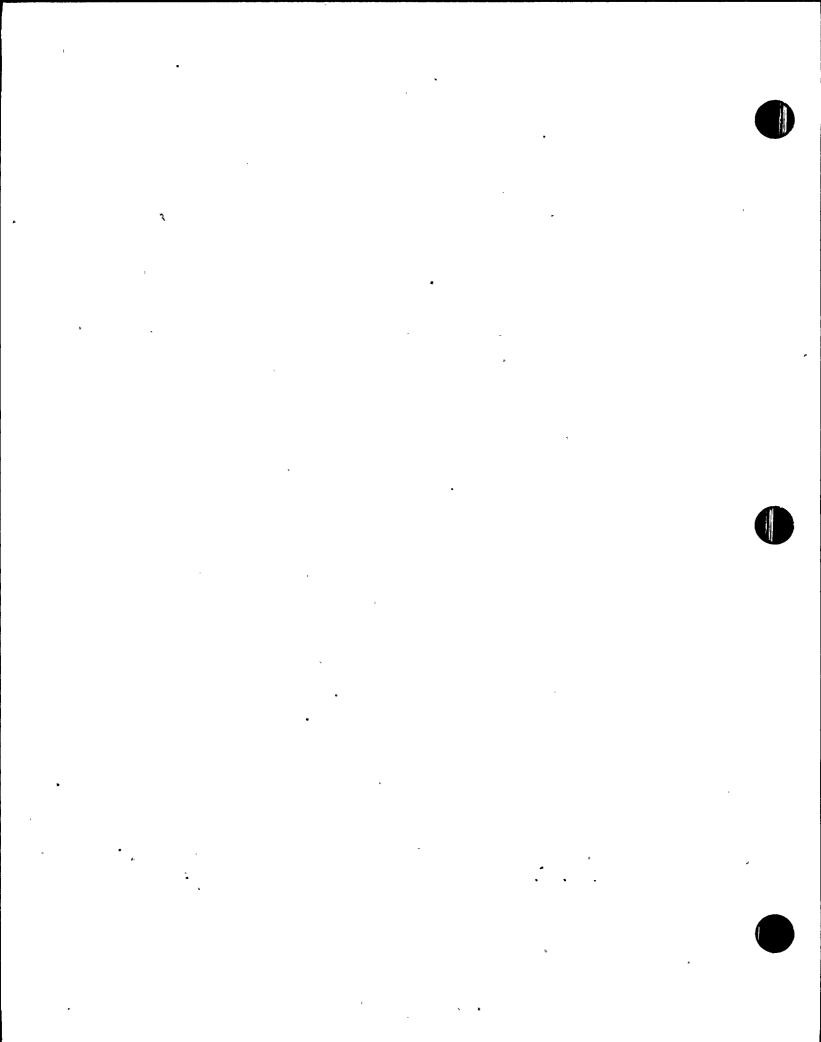




Chemical Analysis

ID#	llardness	UTS	0.2% YS*	С	Mn	Si	P	s	Cr	Ni	Мо	Cu	Ti	V
B1K	N/A	97,700	55,400	0.09	1.86	0.36	0.035	0.014	18.09	8.94	0.34	0.29	0.03	0.04

Note: UTS - Ultimate Heat Strength; YS - Yield Strength; C - Carbon; Mn - Manganese; Si - Silicon; P - Phosphorus; S - Sulfur; Cr - Chromium; Ni - Nickel; Mo - Molybdenum; Cu - Copper; Ti - Titanium; V - Yanadium



Sample ID#: WNP-2-25127823
Lab ID#: B1H
Fastener Description: Bolt 1%" x 4"
Description of Sample Stock Location: 3G1G07C02
Material Specification as Documented by Licensee Records: A490 Type 1
Head Marking (Specification and Manufacturer): A490 PB
Class/Procurement Level: 0C1
General Plant Application (e.g., Pressure Boundary, Structural):
Structural
Vendor: Coast Industrial Co., 2612 Second Avenue, Seattle, WA 98121
QA Requirements Imposed on Vendor: C of C and CMTR
4
Comments: Safety related - meets specification of A490 Type 1.
. , , ,
Licensee Representative: Signature Representative: Date 1-t-ff
NRC Representative: Signature Date 1/8/88



Mechanical Analysis



Chemical Analysis

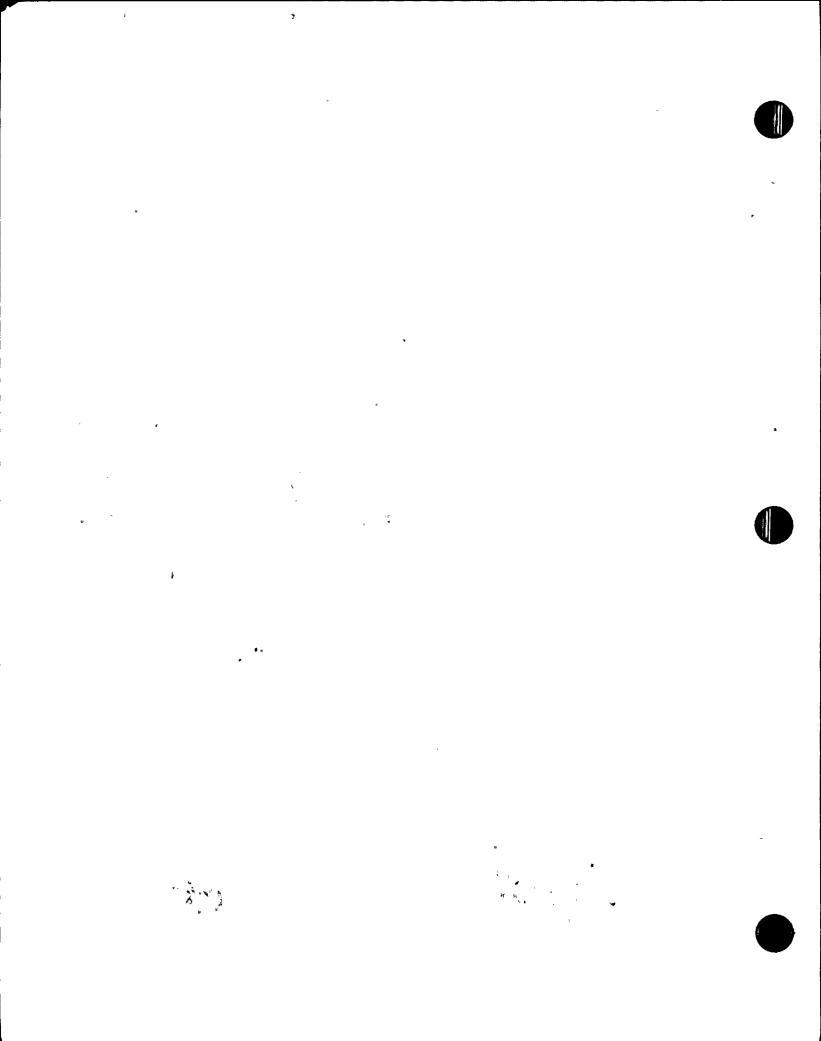


ID#	Hardness	UTS	0.2% YS*	С	Mn	`Sf	P	s	Cr	Ní	Мо	Cu	Ti	γ
	•						\$							
B1 H	N/A	163,200	152,300	0.45	0.85	0.18	0.017	0.025	0.91	0.07	0.17	0.10	<0.01	<0.01

Note: UTS - Ultimate Heat Strength; YS - Yield Strength; C - Carbon; Mn - Manganese; Si - Silicon; P - Phosphorus; S - Sulfur; Cr - Chromium; Ni - Nickel; Mo - Molybdenum; Cu - Copper; Ti - Titanium; Y - Yanadium

Sample ID#:	WNP-2-251319	325		
Lab ID#:	B1F			
Fastener Desc	ription: <u>Bc</u>	olt 1-3/4" x	13½"	
Description o	f Sample Stock	k Location:	0209PR1E2	· · · · · · · · · · · · · · · · · · ·
Material Spec	ification as I	Documented by	Licensee Reco	ords:
A320 Gr.	L7		·	·
Head Marking	(Specification	n and Manufac	turer): L7	P6 J
Class/Procure	ment Level:	- QC1		
			•	Structural):
Structura	1		*	r
				do, Las Vegas, NV 89118
ум кефитепет	ts imposed on			
Comments: S	afety related		ification of A	320 Gr. L7.
	21007 1014004		1110001011 01 A	020 di .• 27.
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Licensee Repr	esentative:		***************************************	,
Signature	R	Rans	•	Date 1-6-88
NRC Represent	ative:	 γ.		
Signature	lex 11	从		Date 1/8/88
	///	<u> </u>		1/0/50







Mechanical Analysis

Chemical Analysis

ID#	Hardness	UTS	0.2% YS*	, C	Mn .	Si	. Р	s	Cr	Ni .	Мо	Cu	Ti	γ
B1F	N/A	149,100	131,500	0.42	0.86	0.19	0.025	0.020	0.92	0.08	0.15	0.19	<0.01	<u>~0.01</u>

Note: UTS - Ultimate Heat Strength; YS - Yield Strength; C - Carbon; Mn - Manganese; Si - Silicon; P - Phosphorus; S - Sulfur; Cr - Chromium; Ni - Nickel; Mo - Molybdenum; Cu - Copper; Ti - Titanium; Y - Yanadium

Sample ID#: WNP-2-25114593
Lab ID#: B1I, B1J, B1L
Fastener Description: Bolts 1½ x 6½"
Description of Sample Stock Location: 3G1G05D01
Material Specification as Documented by Licensee Records: A307 Gr. B
Head Marking (Specification and Manufacturer): Y
Class/Procurement Level: QCI
General Plant Application (e.g., Pressure Boundary, Structural):
Structural
Vendor: Ray Bristow Co., 1640 NW 14th Avenue, Portland, OR 97209
QA Requirements Imposed on Vendor: C of C and CMTR
* ****
Comments: Safety related - meets specification of A307 Gr. B.
,
Licensee Representative:
Signature RRGWS Date 1-6-88
NRC Representative: Signature Date 1/8/87



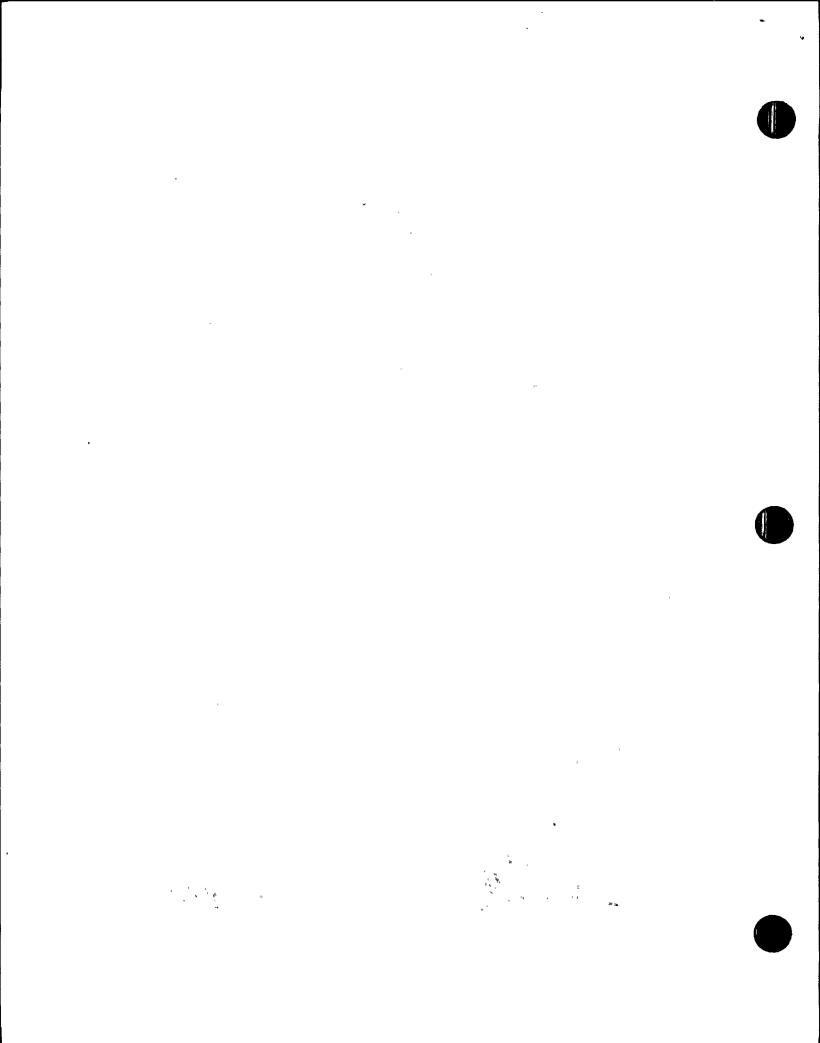
A SUMMARI

Mechanical Analysis Chemical Analysis

ID#	Hardness	UTS	0.2% YS*	С	Mn	Si	P	Š	Cr	Ni	Мо	Cu	Ti	y
BlI	N/A	68,500	38,900	0.21	0.68	0.05	0.005	0.019	0.13	0.19	0.02	0.17	<0.01	<0.01

Note: UTS - Ultimate Heat Strength; YS - Yield Strength; C - Carbon; Mn - Manganese; Si - Silicon; P - Phosphorus; S - Sulfur; Cr - Chromium; Ni - Nickel; Mo - Molybdenum; Cu - Copper; Ti - Titanium; Y - Vanadium

Sample ID#: WNP-2-25114593
Lab ID#: B1I, B1J, B1L
Fastener Description: Bolts 1½ x 6½"
Description of Sample Stock Location: 3G1G05D01
Material Specification as Documented by Licensee Records: A307 Gr. B
•
Head Marking (Specification and Manufacturer): Y
Class/Procurement Level: QCI
General Plant Application (e.g., Pressure Boundary, Structural):
Structural .
Vendor: Ray Bristow Co., 1640 NW 14th Avenue, Portland, OR 97209
QA Requirements Imposed on Vendor: C of C and CMTR
· · · · · · · · · · · · · · · · · · ·
Comments: Safety related - meets specification of A307 Gr. B.
, , , , , , , , , , , , , , , , , , , ,
Licensee Representative:
Signature RRANS Date 1-8-88
NRC Representative:
Signature





Mechanical Analysis Chemical Analysis

ID#	Hardness	UTS	0.2% YS*	С	Mn	Si	P	; s	° Cr	. Ni	Мо	Cu	Ti	Y
	_							-						
BlJ	N/A	67,500	37,600	0.22	0.63	0.05	0.005	0.019	0.13	0.20	0.02	0.17	< 0.01	<0.01

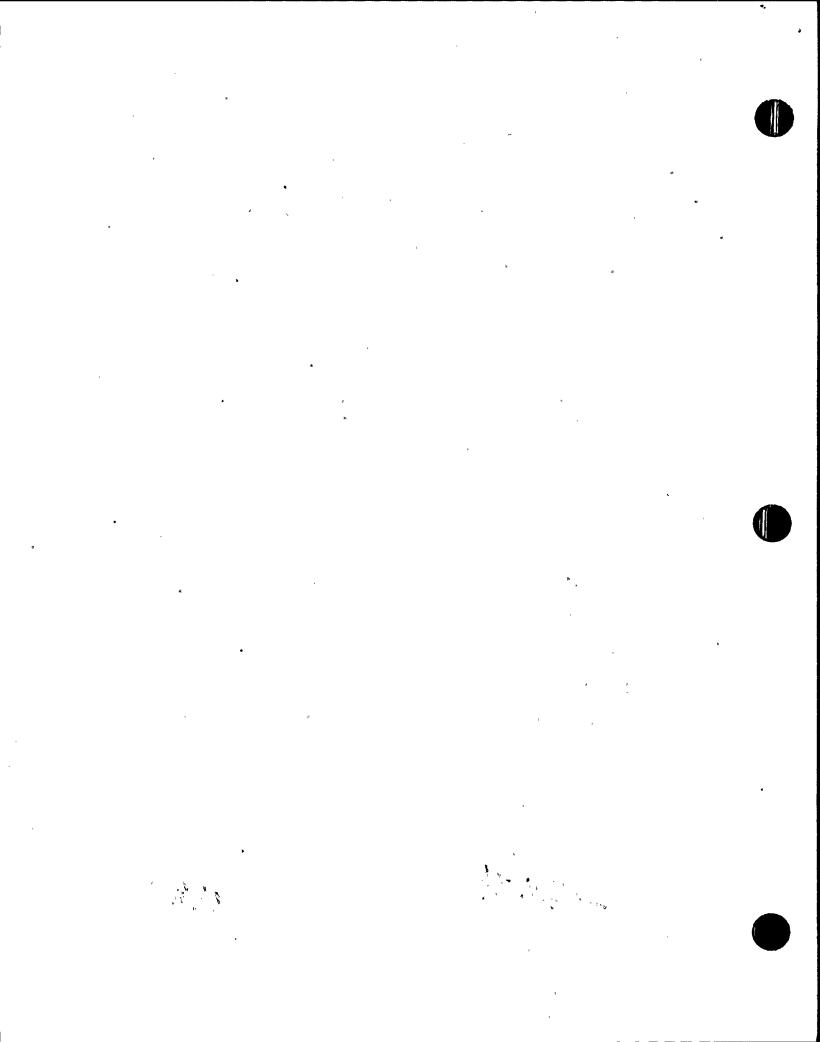
Note: UTS - Ultimate Heat Strength; YS - Yield Strength; C - Carbon; Mn - Manganese; Si - Silicon; P - Phosphorus; S - Sulfur; Cr - Chromium; Ni - Nickel; Mo - Molybdenum; Cu - Copper; Ti - Titanium; Y - Yanadium

*Proof Load

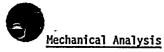
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Sample ID#: WNP-2-25114593
Lab ID#: B1I, B1J, B1L
Fastener Description: Bolts 1½ x 6½"
Description of Sample Stock Location: 3G1G05D01
•
Material Specification as Documented by Licensee Records: A307 Gr. B
Head Marking (Specification and Manufacturer): Y
Class/Procurement Level: OCI
'General Plant Application (e.g.; Pressure Boundary, Structural):
Structural
Vendor: Ray Bristow Co., 1640 NW 14th Avenue, Portland, OR 97209
QA Requirements Imposed on Vendor: C of C and CMTR
Comments: Safety related - meets specification of A307 Gr. B.
-
•
Licensee Representative:
Signature RRang Date 1-5-58
NRC Representative:
Signature Date 1/8/88





Chemical Analysis





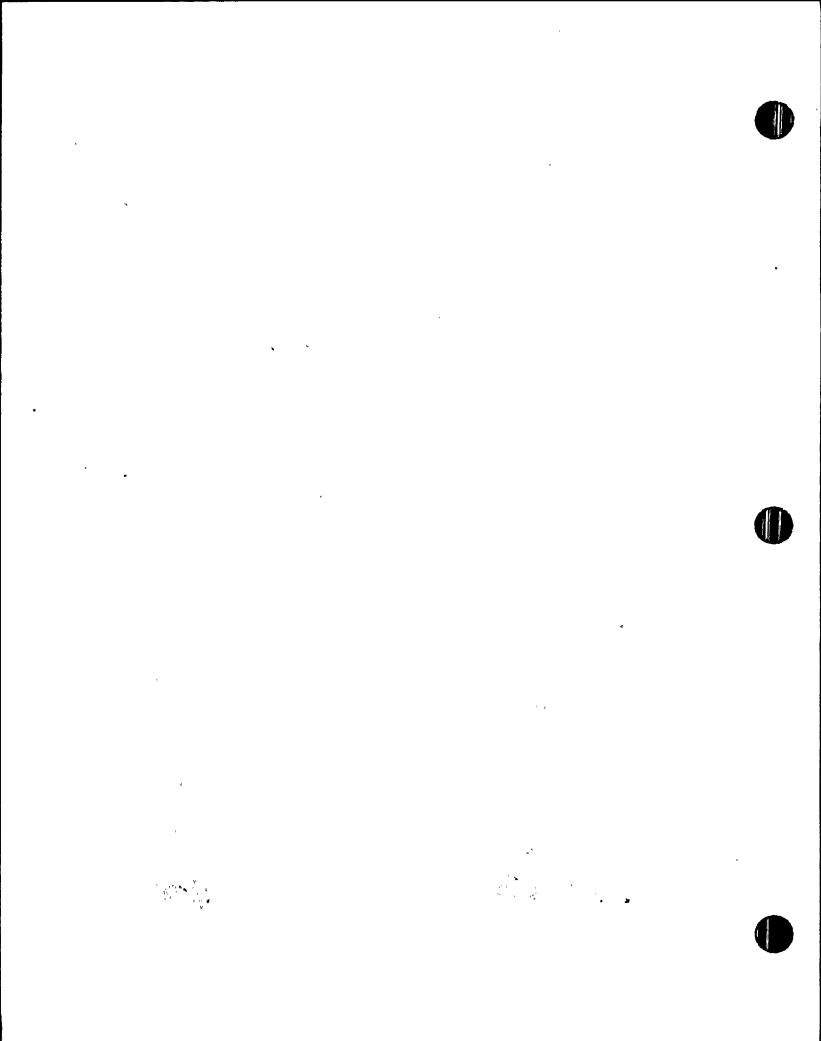


ID#	Hardness	UTS	0.2% YS*	С	Mn	Si	P	s	Cr	ni	Мо	Cu	Ti	V
						_			ŧ					
B1L		68,600	39,000	0.22	0.68	Ò.05	0.004	0.019	0.12	1.98	0.02	0.17	<0.01	<0.01

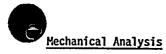
Note: UTS - Ultimate Heat Strength; YS - Yield Strength; C - Carbon; Mn - Manganese; Si - Silicon; P - Phosphorus; S - Sulfur; Cr - Chromium; Ni - Nickel; Mo - Molybdenum; Cu - Copper; Ti - Titanium; Y - Yanadium

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Sample ID#: WNP-2-25207154 .	
Lab ID#: N1B, N1D	
Fastener Description: Nut ½"	<u>'</u>
Description of Sample Stock Location: 0207542	
Material Specification as Documented by Licensee Reco	ords: A325 Gr. B
Head Marking (Specification and Manufacturer): B S	
Class/Procurement Level: <u>QC1</u>	
General Plant Application (e.g., Pressure Boundary, S	Structural): Structural
Vendor: Guyon Alloys, 3400 Rogerdale Road, Houston, TX	77042
QA Requirements Imposed on Yendor: C of C	
Comments: *Markings do not meet the requirements of AS	STM A325 Type 1, 2, 3 nuts.
Review indicates that these nuts are hex nuts rather	then heavy hex as specified
in the procurement documents. Chemical analysis sati	isfies the requirements of
A325 Type 1, 2, 3 nuts. Further evaluation is under	way to determine safety
significance and its impact.	
Licensee Representative:	٧
Signature RRang	Date 1-t-68
NRC Representative:	
Signature 67/100	Date 1/8/88



Chemical Analysis

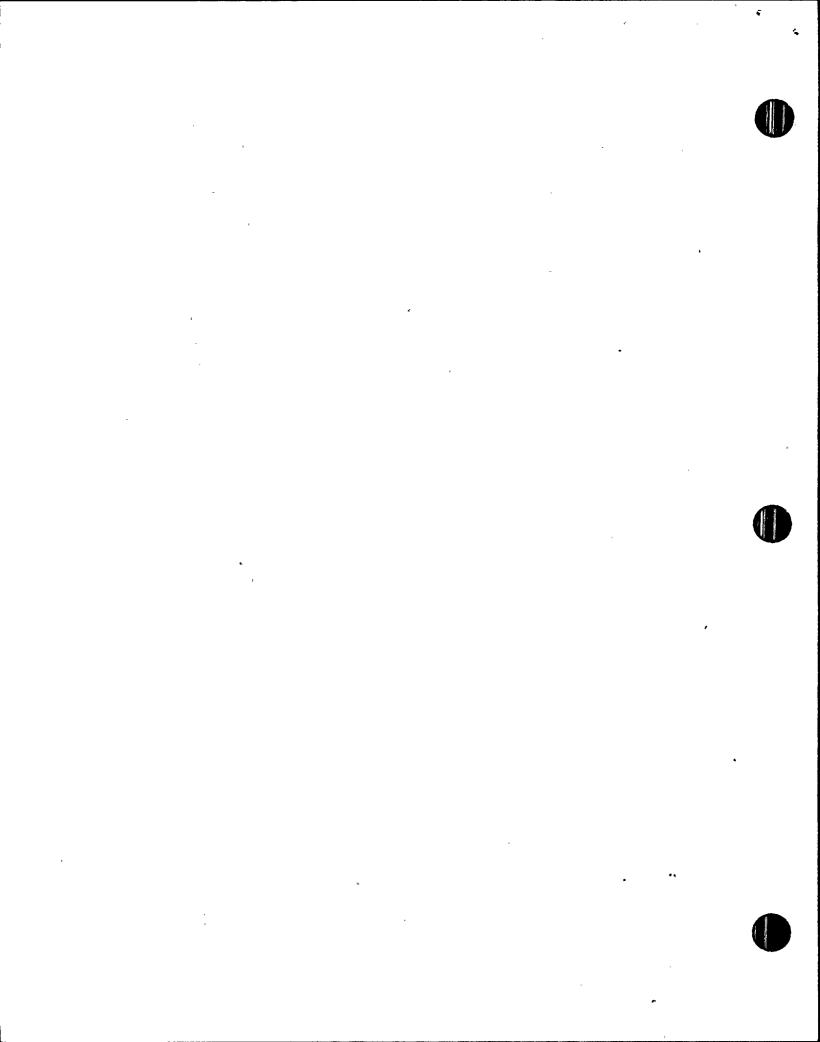






ID#	Hardness	UTS	0.2% YS*	0.2% YS* C Mn Si P S · Cr Ni	Мо	Cu	Ti	v						
	•										rio			
ы1R	HRB 95.0	N/A	N/A	0.10	0.66	0.32	0 099	0.026	0.57	0.63	0.00	0.28	0 01 مر	-0.01

Note: UTS - Ultimate Heat Strength; YS - Yield Strength; C - Carbon; Mn - Manganese; Si - Silicon; P - Phosphorus; S - Sulfur; Cr - Chromium; Ni - Nickel; Mo - Molybdenum; Cu - Copper; Ti - Titanium; Y - Yanadium





Sample ID#: WNP-2-25206370
Lab ID#: N1A, N1G
Fastener Description: Nut 11/4"
Description of Sample Stock Location: 02073A53B
Material Specification as Documented by Licensee Records:
A194 Gr. 4 ASME III/2
Head Marking (Specification and Manufacturer): S7J 4
Class/Procurement Level: QC1
General Plant Application (e.g., Pressure Boundary, Structural):
Structural
Vendor: Coast Industrial Supply Co., 2612 2nd Avenue, Seattle, WA 90058
QA Requirements Imposed on Vendor: <u>C of C and CMTR</u>
Comments: Safety related - meets specifications of A194 Gr. 4.
Could not perform impact test due to material size.
Licensee Representative:
Signature KRaua Date 1-8-88
NRC Representative: Signature Date 1/8/8/
Signature Date 1/8/88

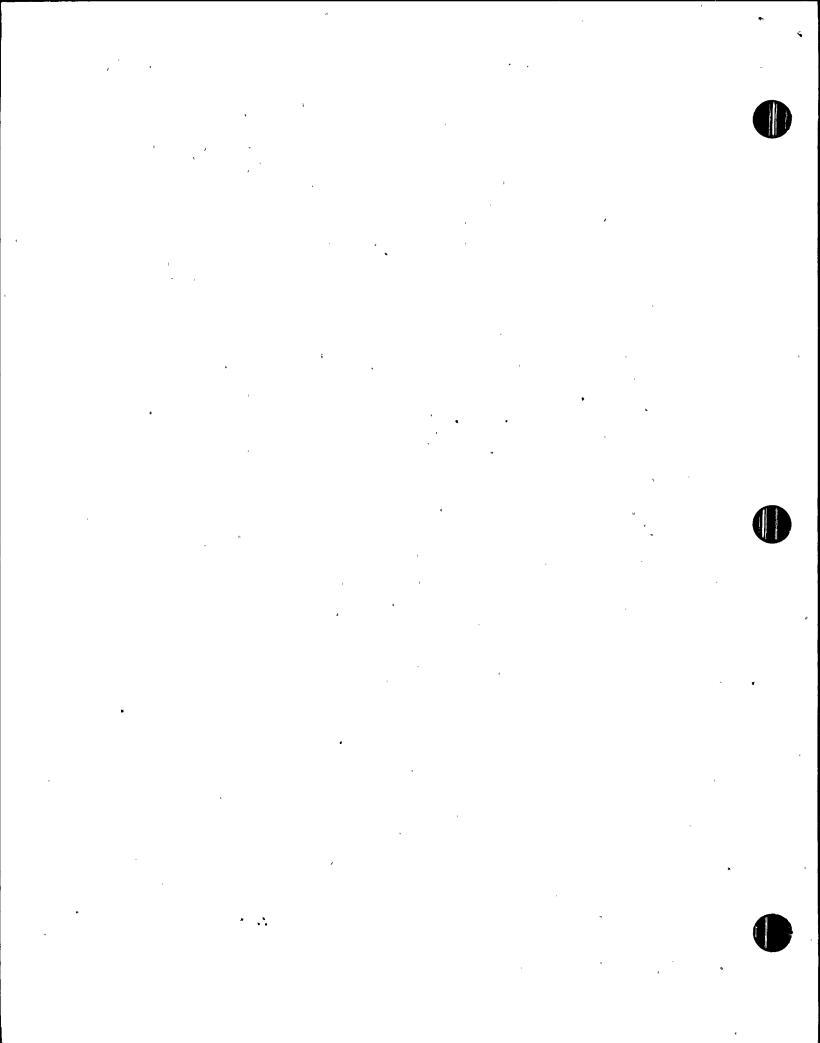


SUMMARY

Mechanical Analysis Chemical Analysis

ID#	Hardness	UTS	0.2% YS*	С	Mn	Si	P	s	Cr	ni	Мо	Cu	Ti	γ
N1A	HRC 25.5	N/A	N/A	0.44	0.76	0.20	0.015	0.033	0.07	0.07	0.25	0.05	<0.01	<0.01

Note: UTS - Ultimate Heat Strength; YS - Yield Strength; C - Carbon; Mn - Manganese; Si - Silicon; P - Phosphorus; S - Sulfur; Cr - Chromium; Ni - Nickel; Mo - Molybdenum; Cu - Copper; Ti - Titanium; V - Vanadium



Sample ID#: WNP-2-25206370
Lab ID#: N1A, N1G
Fastener Description: Nut 14"
Description of Sample Stock Location: 02073A53B
Material Specification as Documented by Licensee Records:
A194 Gr. 4 ASME III/2
Head Marking (Specification and Manufacturer): S7J 4
Class/Procurement Level: QC1
General Plant Application (e.g., Pressure Boundary, Structural):
Structural
Vendor: Coast Industrial Supply Co., 2612 2nd Avenue, Seattle, WA 90058
QA Requirements Imposed on Vendor: <u>C of C and CMTR</u>
Comments: Safety related - meets specifications of A194 Gr. 4.
Could not perform impact test due to material size.
••
Licensee Representative:
Signature RRaws Date 1-6-88
NRC Representative:
Signature



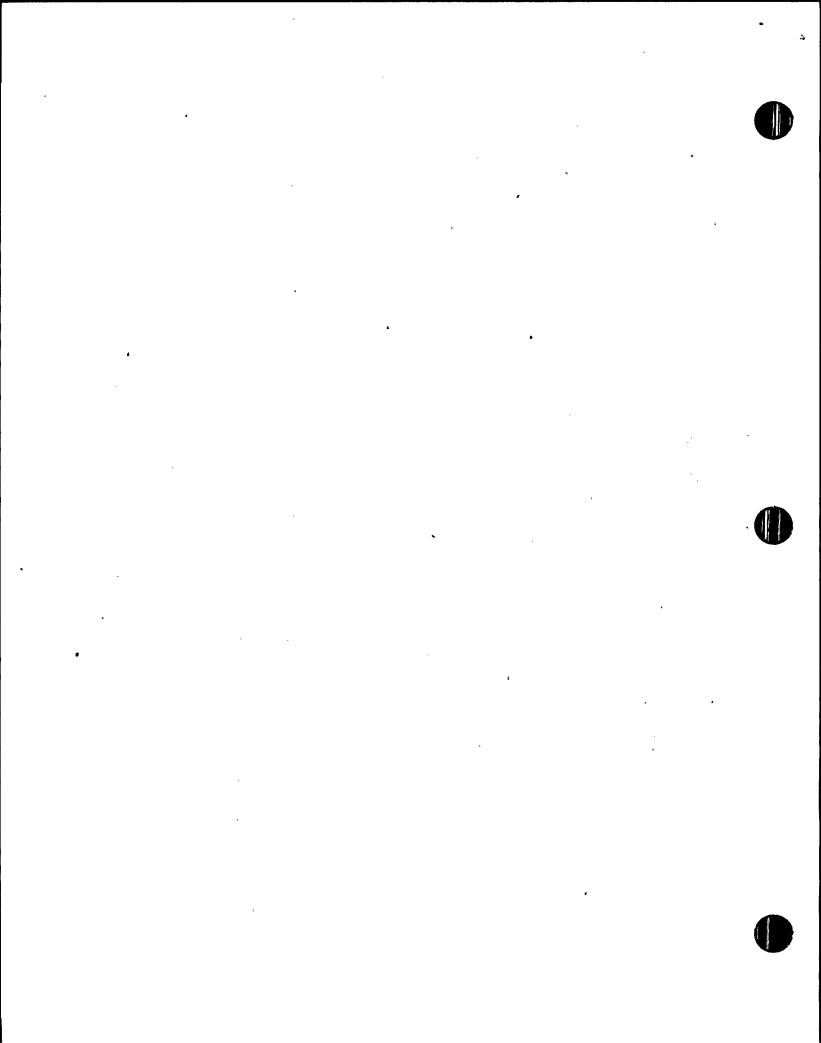


Mechanical Analysis Chemical Analysis

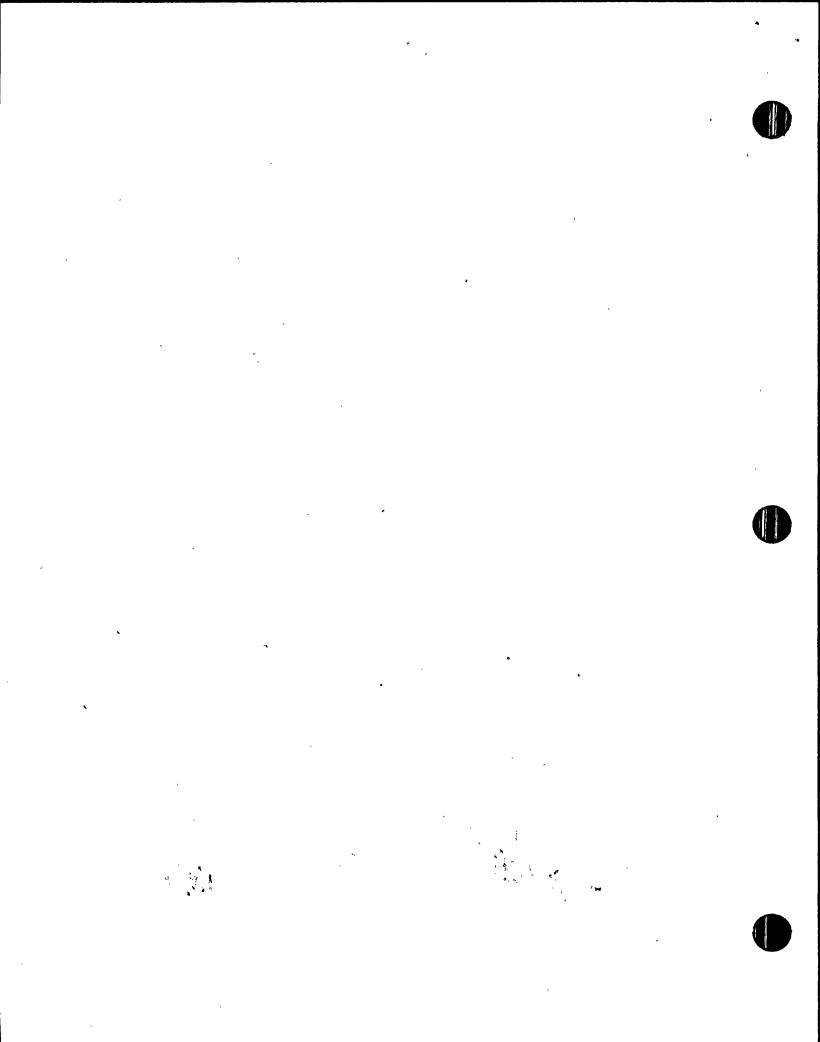
ID#	Hardness	UTS	0.2% YS*	C	Mn	Si	P	S	Cr	Ni	Мо	Cu	Ti	Y
N1G	HRC 26.0	N/A	N/A	0.43	0.76	0.20	0.017	0.028	0.07	0.07	0.26	0.04	<0.01	∠0.01

Note: UTS - Ultimate Heat Strength; YS - Yield Strength; C - Carbon; Mn - Manganese; Si - Silicon; P - Phosphorus; S - Sulfur; Cr - Chromium; Ni - Nickel; Mo - Molybdenum; Cu - Copper; Ti - Titanium; Y - Yanadium

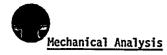
^{*}Proof Load



Sample ID#: WNP-2-25210423
Lab ID#: N1S
Fastener Description: Nut 3/4"
Description of Sample Stock Location: 3F1F07D01
Material Specification as Documented by Licensee Records: A194 Gr. 2H
ASME III/2
Head Marking (Specification and Manufacturer): J S 2H
Class/Procurement Level: 0C1
General Plant Application (e.g., Pressure Boundary, Structural):
Pressure Boundary
Vendor: Coast Industrial, 2612 2nd Avenue, Seattle, WA 98134
OA Poquinomente Impaced on Vendor: c .s.c
QA Requirements Imposed on Vendor: C of C
Cofety velocity and the second field of A104 Co. Oli
Comments: Safety related - meets specification of A194 Gr. 2H.
Licensee Representative:
Signature Rang Date 1-6-68
NRC Representative:
Signature Date Date



Chemical Analysis







ID#	Hardness	UTS	0.2% YS*	С	Mn	` Si	P	S	Cr	Nf	Мо	Cu	Ti	Y
N1S	HRC 26.0	N/A	N/Ā	0.49	0.77	0.22	0.028	0.040	0.08	0.11	0.02	0.22	<0.01	<0.01

Note: UTS - Ultimate Heat Strength; YS - Yield Strength; C - Carbon; Mn - Manganese; Si - Silicon; P - Phosphorus; S - Sulfur; Cr - Chromium; Ni - Nickel; Mo - Molybdenum; Cu - Copper; Ti - Titanium; Y - Vanadium

^{*}Proof Load

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Sample 10#1 WNP-2-25213370	
Lab ID#: N10	
Fastener Description: Nut 7/8"	
Description of Sample Stock Location: 3	H1H03D02
Material Specification as Documented by	Licensee Records: SA194 Gr. 2H
ASME III/2	
Head Marking (Specification and Manufact	turer): 1E74 2H T
Class/Procurement Level: QCI	
General Plant Application (e.g., Pressur	re Boundary, Structural):
Pressure Boundary	· · · · · · · · · · · · · · · · · · ·
	David
Vendor: Ray Bristow Co., 1640 NW 14th,	Portiand, UK 97209
OA Deswinsperts Imposed on Vandous . O.	- C O C OMTO
QA Requirements Imposed on Vendor: C	of C and CMTR
QA Requirements Imposed on Vendor: C Comments: Safety related - meets specific	
Comments: Safety related - meets specif	
Comments: Safety related - meets specifications Licensee Representative:	ication of SA194 Gr. 2H ASME III/2.
Comments: Safety related - meets specif	
Comments: Safety related - meets specification. Licensee Representative:	ication of SA194 Gr. 2H ASME III/2.



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Mechanical Analysis Chemical Analysis

ID#	Hardness	UTS	0.2% YS*	С	Kn	Si	P	s	Cr	Ni	Мо	Cu	Ti	γ
พ10	HRC 30.0	N/A	N/A	0.50	0.91	0.20	0.012	0.024	0.05	0.03	0.03	0.01	<0.01	~0.01

Note: UTS - Ultimate Heat Strength; YS - Yield Strength; C - Carbon; Mn - Manganese; Si - Silicon; P - Phosphorus; S - Sulfur; Cr - Chromium; Ni - Nickel; Mo - Molybdenum; Cu - Copper; Ti - Titanium; Y - Yanadium

^{*}Proof Load

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Sample ID#: WNP-2-25206405
Lab ID#: N1E
Fastener Description: Nut 1½"
Description of Sample Stock Location: 02073A70B
Material Specification as Documented by Licensee Records: A194 Gr. 2H
Head Marking (Specification and Manufacturer): 2H K
Class/Procurement Level: QC1
General Plant Application (e.g., Pressure Boundary, Structural):
Pressure Boundary
Vendor: Ray Bristow Co., 1640 NW 14th Avenue, Portland, OR 97209
QA Requirements Imposed on Vendor: C of C and CMTR
*
Comments: Safety related - meets specifications of A194 Gr. 2H.
Licensee Representative:
Signature Rous Date 1-8-88
NRC Representative:
Signature Date Date

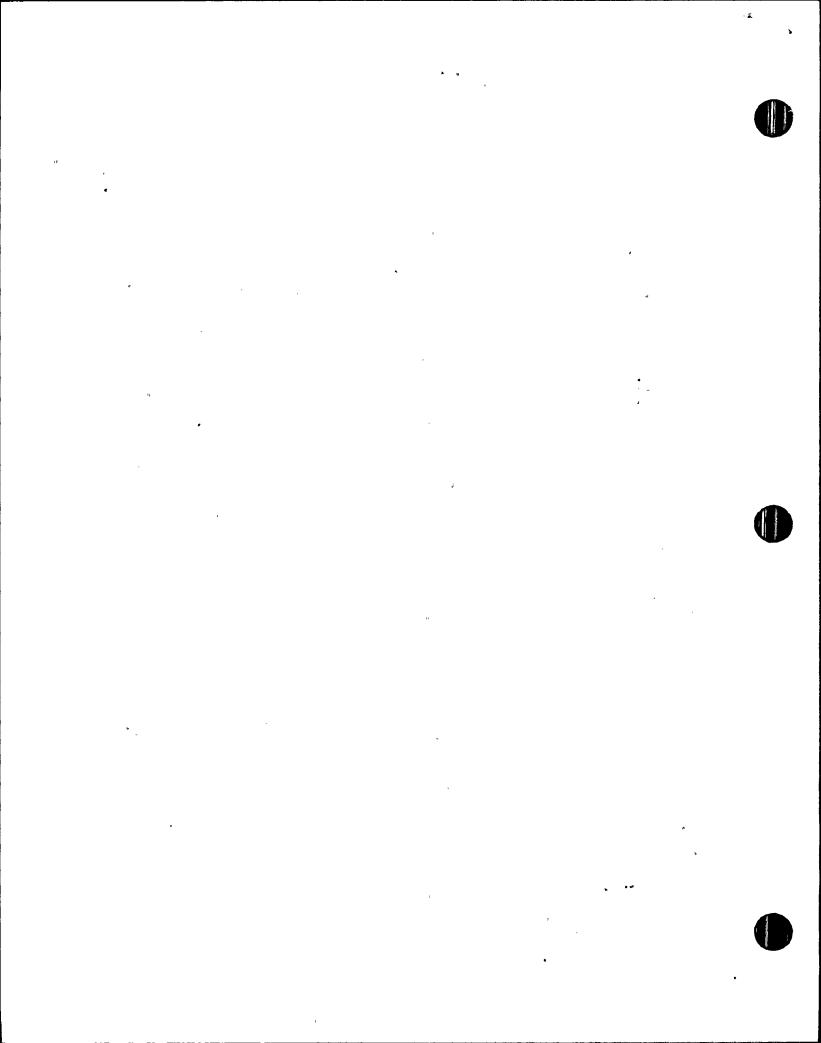
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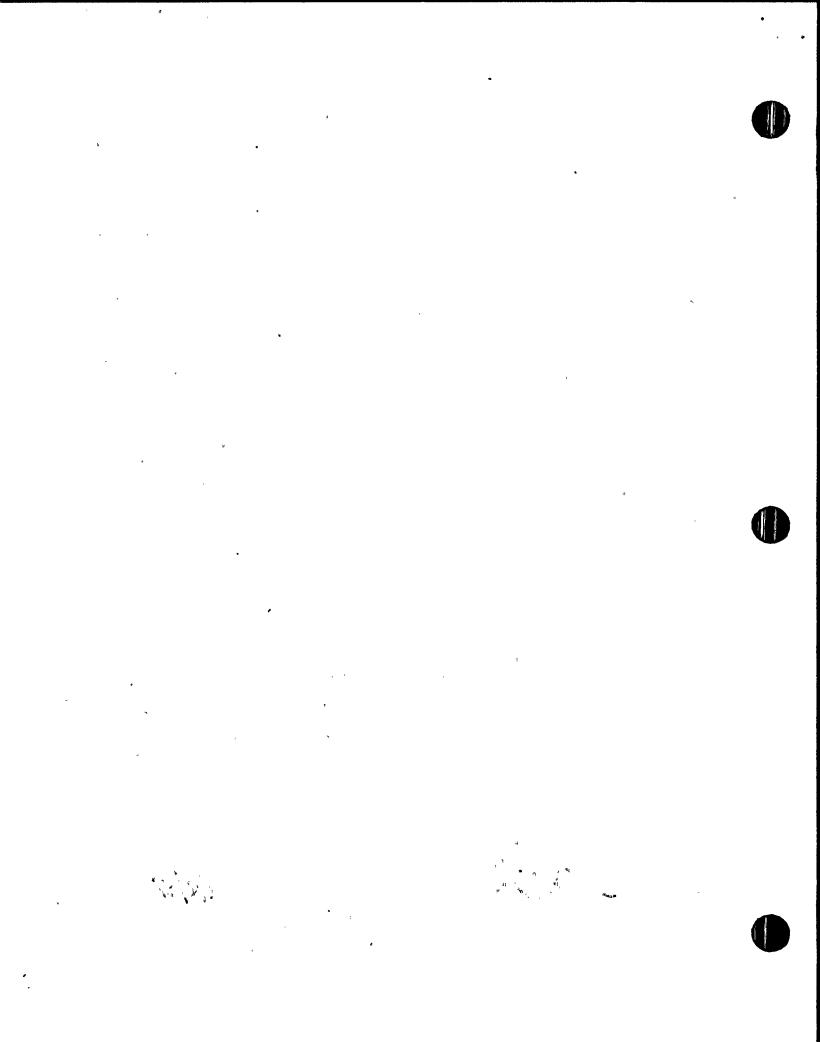
Mechanical Analysis Chemical Analysis

ID#	Hardness	UTS	0.2% YS*	С	Mn	Si	P	S	Cr	Ni	Мо	Cu	Ti	¥
										1				
N1E	HRC 29.5	N/A	N/A	0.48	0.75	0.23	0.014	0.015	0.11	0.02-	0.01	0.01	< 0.01	<0.01

Note: UTS - Ultimate Heat Strength; YS - Yield Strength; C - Carbon; Mn - Manganese; Si - Silicon; P - Phosphorus; S - Sulfur; Cr - Chromium; Ni - Nickel; Mo - Molybdenum; Cu - Copper; Ti - Titanium; Y - Yanadium



Sample ID#: WNP-2-25210192
Lab ID#: N1T
Fastener Description: Nut 1½"
Description of Sample Stock Location: 3G1G02C01
Material Specification as Documented by Licensee Records: A194 Gr. 2H
ASME III/2
Head Marking (Specification and Manufacturer): RM GS 2H
Class/Procurement Level: QC1
General Plant Application (e.g., Pressure Boundary, Structural):
Pressure Boundary
Vendor: Rocky Mountain Nuclear, P.O. Box 15045, Salt Lake City, UT
•
QA Requirements Imposed on Vendor: CMTR
, v - 1 , v
Comments: · · Safety related - meets specification of A194 Gr. 2H.
Impact test not performed due to material size.
,
Licensee Representative:
Signature Rkung Date 1-6-88
NRC Representative:
Signature Date Date
17

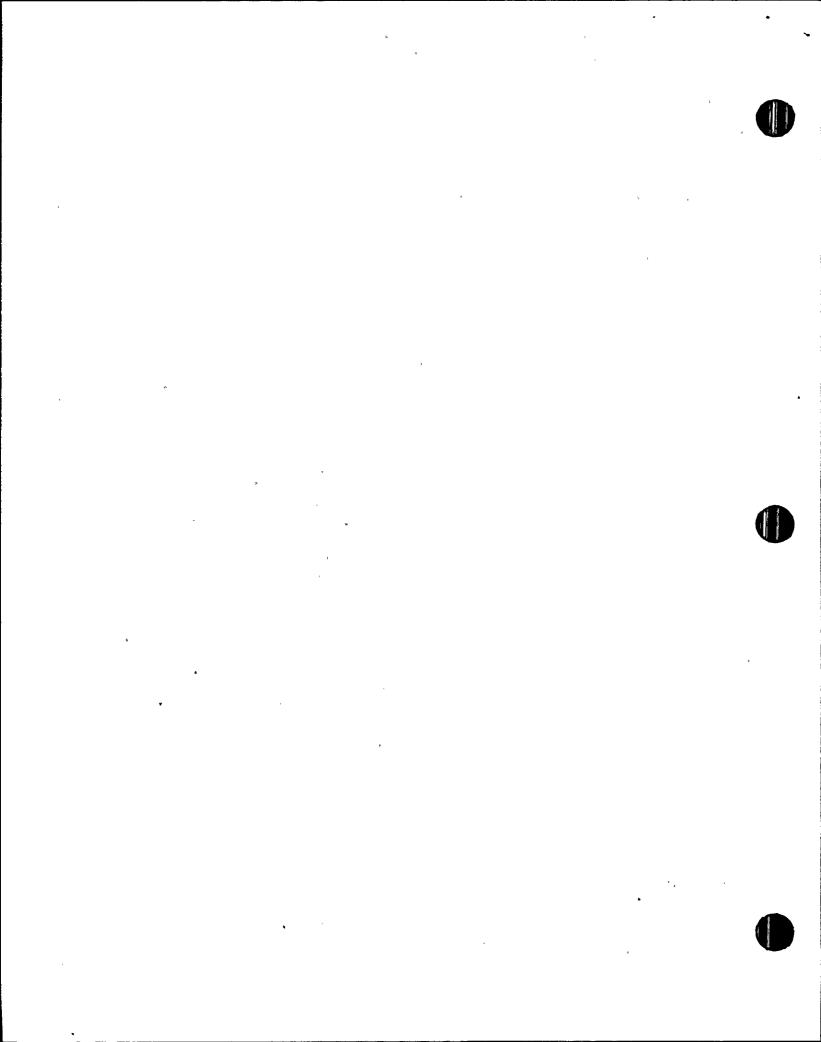






ID#	Hardness	UTS	0.2% YS*	С	Mn	Si	P	₹ S	Cr	Ni	Мо	Cu	Ti	Y
						-				le				
NIT	HRC 27.5	N/A	N/A	0.42	0.79	0.25	0.015	0.015	0.03	0.02	0.01	0.01	<0.01	<0.01

Note: UTS - Ultimate Heat Strength; YS - Yield Strength; C - Carbon; Mn - Manganese; Si - Silicon; P - Phosphorus; S - Sulfur; Cr - Chromium; Ni - Nickel; Mo - Molybdenum; Cu - Copper; Ti - Titanium; Y - Yanadium







ID#	Hardness.	UTS	0.2% YS*	С	Mn	Si	P	S ,	Cr	Ni	Мо	Cu	Tí	γ
NIF	HRC 30.5	N/A	N/A	0.46	0.88	0:20	0.015	0.046	0.12	0.02	0.01	0.01	<0.01	<0.01

Note: UTS - Ultimate Heat Strength; YS - Yield Strength; C - Carbon; Mn - Manganese; Si - Silicon; P - Phosphorus; S - Sulfur; Cr - Chromium; Ni - Nickel; Mo - Molybdenum; Cu - Copper; Ti - Titanium; V - Vanadium

^{*}Proof Load .

Sample ID#: WNP-2-25208673
Lab ID#: N1H, N1I
Fastener Description: Nut 3/8"
Description of Sample Stock Location: 0209G43
Material Specification as Documented by Licensee Records: SA563 Gr. A
ASME III/1
Head Marking (Specification and Manufacturer): BJS
Class/Procurement Level: QC1
General Plant Application (e.g., Pressure Boundary, Structural):
Pressure Boundary, Structural
Vendor: NPS Industries, 150 Meadowlands Parkway, Secaucus, NJ 07094
QA Requirements Imposed on Vendor: C of C and CMTR
Comments: Safety related - meets specification of SA563 Gr. A.
• •
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Licensee Representative:
Signature Raw Date 1-8-88
NRC Representative:
Signature 69/14 Date 1/8/88
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Mechanical Analysis

HRB 86.5

N/A

N/A

N1H

Chemical Analysis

0.50

<0.01

0.15

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ID#	Hardness	UTS	0.2% YS*	С	Mn	Si	P	s	Cr	Ni	Мо	Cu	Ti	Y
				•		*								

0.004

0.020

0.01

- 0.01

0.01

0.01

<0.01 <0.01

Note: UTS - Ultimate Heat Strength; YS - Yield Strength; C - Carbon; Mn - Manganese; Si - Silicon; P - Phosphorus; S - Sulfur; Cr - Chromium; Ni - Nickel; Mo - Molybdenum; Cu - Copper; Ti - Titanium; Y - Yanadium

1

^{*}Proof Load

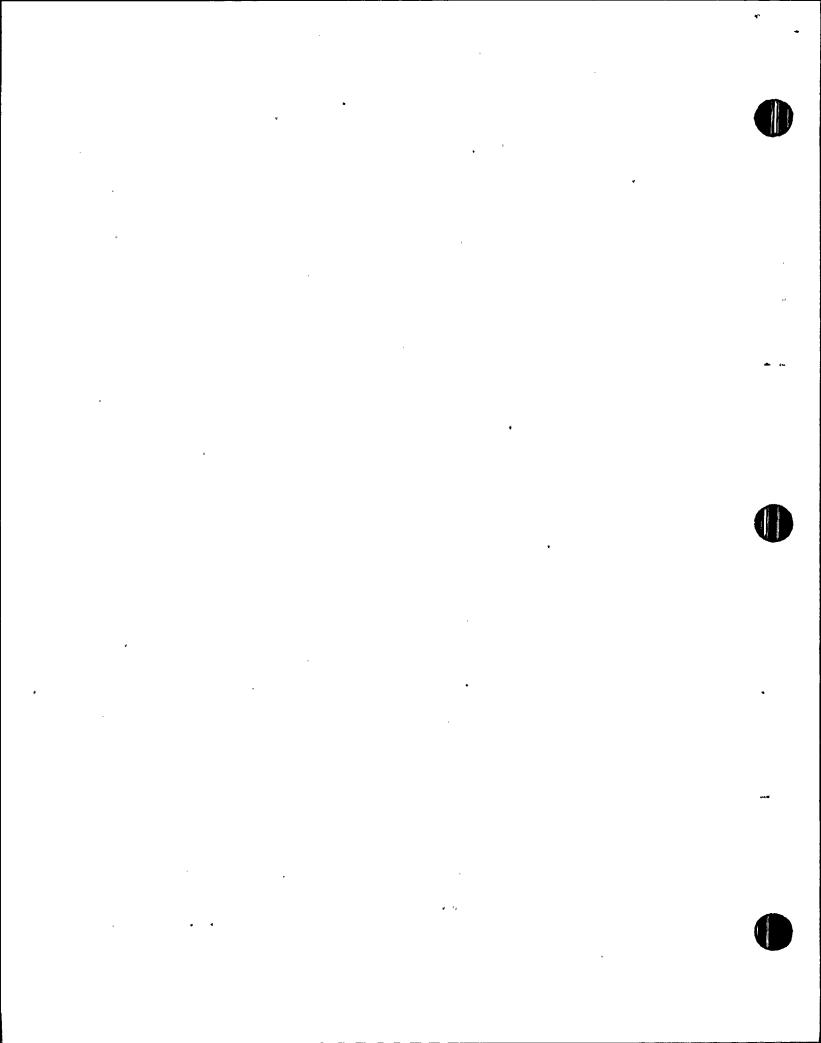




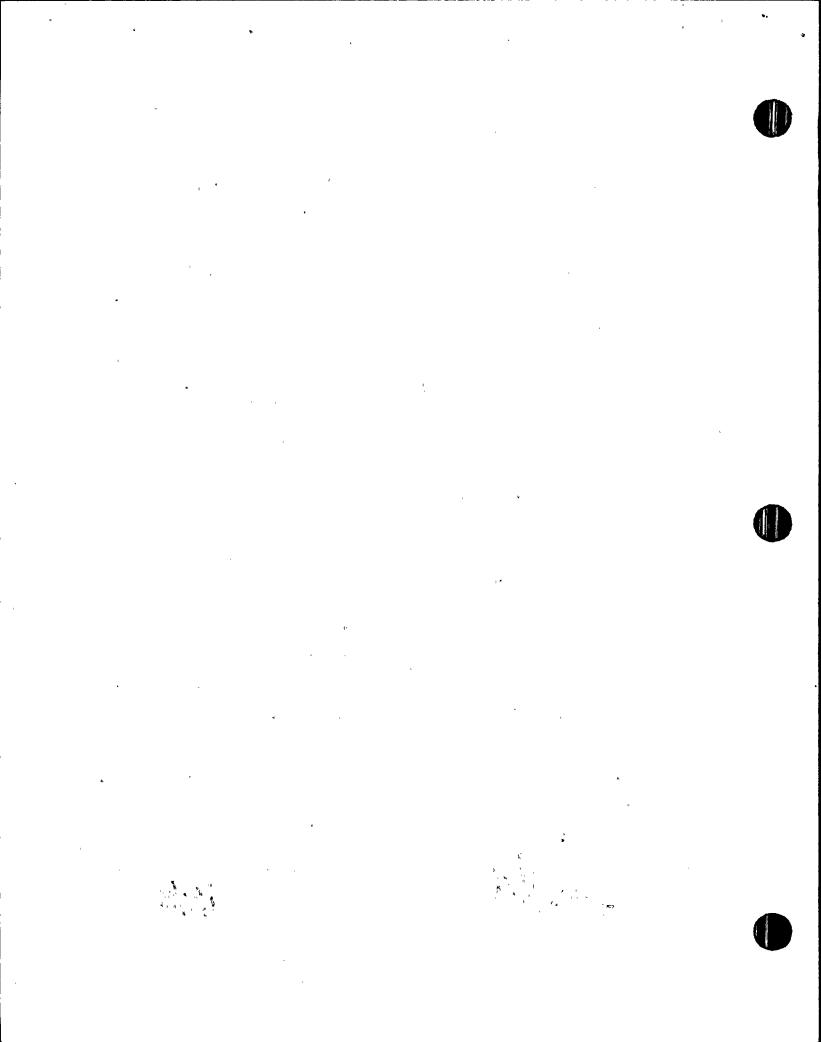
<u>chanical</u>	<u> Analysis</u>	<u>Chemical</u>	Analysis

ID#	Hardness	UTS	0.2% YS*	С	- Mn	Si	P	S	Cr	Ni	Мо	Cu	Ti	V
						-								
NII	HRB 89.0	N/A	N/A	0.19	0.48	<0.01	0.005	0.022	0.05	0.05	0.1	0.10	<0.01	<0.01

Note: UTS - Ultimate Heat Strength; YS - Yield Strength; C - Carbon; Mn - Manganese; Si - Silicon; P - Phosphorus; S - Sulfur; Cr - Chromium; Ni - Nickel; Mo - Molybdenum; Cu - Copper; Ti - Titanium; Y - Vanadium



$\overline{\Box}$



Sample ID#: WNP-2-25206615
Lab ID#: N1P, N1Q, N1R, N1U
Fastener Description: Nuts 1½"
Description of Sample Stock Location: 3G1G06E01
Material Specification as Documented by Licensee Records: A194 Gr. 2H
Head Marking (Specification and Manufacturer): J 1 S 2H
Class/Procurement Level: QC1
General Plant Application (e.g., Pressure Boundary, Structural):
Pressure Boundary
Vendor: Coast Industrial Co., 2612 2nd Avenue, Seattle, WA 98134
QA Requirements Imposed on Vendor: C of C and CMTR
Comments: Safety related - meets specification of A194 Gr. 2H.
Licensee Representative:
Signature KKQWS Date 1-8-88
NRC Representative: Signature Date 1/8/88

Mechanical Analysis



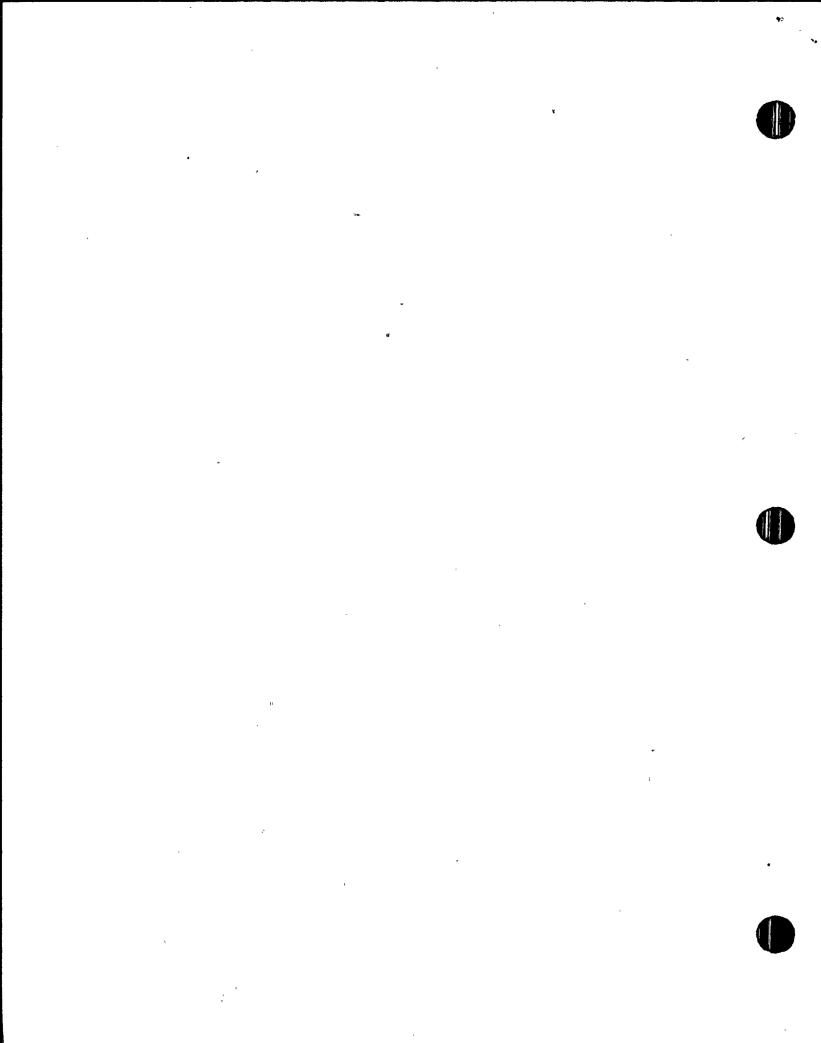


Mechanical Analysis	Chemical Analysis

ID#	Hardness	UTS	0.2% YS*	С	Mn	Si	P	s ·	Cr	Ni	Мо	Cu	Ti	Y
NIU	HRC 28.0	N/A	N/A	0.50	0.76	0.22	0.011	0.027	0.10	0.13	0.02	0.16	<0.01	~ 0.01

Note: UTS - Ultimate Heat Strength; YS - Yield Strength; C - Carbon; Mn - Manganese; Si - Silicon; P - Phosphorus; S - Sulfur; Cr - Chromium; Ni - Nickel; Mo - Molybdenum; Cu - Copper; Ti - Titanium; Y - Yanadium

^{*}Proof Load



ATTACHMENT 4

NON-SAFETY RELATED

BOLTS, STUDS, CAP SCREWS

No.	Sample I.D.# Lab I.D.#		Grade (per matcode)	Size (per matcode)						
1	WNP-2-25131211	B1G	A325 Tp. 2	½"×1"						
2	WNP-2-25100376	B2A	A193 Gr. B7	14"x9"-8						
3	WNP-2-25100376	B2B	A193 Gr. B7	1 1 "x9"-8						
4	WNP-2-25100376	B2C	A193 Gr. B7	14"x9"-8						
5	WNP-2-25116343	B1B	A325 Gr. B	1"x3"-8						
6	WNP-2-25103995	B2E	А449	5/8"x6"-11						
7	WNP-2-25100565	B2D	A193 Gr. B8	7/8"x6"-11						
8	WNP-2-25127690	B2G	A307 Gr. B	1-1/8"x5½"-7						
9	WNP-2-25127690	В2Н	A307 Gr. B	1-1/8"x5½"-7						
10	WNP-2-25100236	B2F	A354 Gr. BC	å"x6"-20						
NUTS										
No.	Sample I.D.#	Lab I.D.#	Grade (per matcode)	Size (per matcode)						
1	WNP-2-25207154	N1D	A325 Gr. B	½"-13						
2	WNP-2-25206615	N1P	A194 Gr. 2H	14"-8						
3	WNP-2-25206615	N1Q	A194 Gr. 2H	11 "-8						
4	WNP-2-25206615	N1R	A194 Gr. 2H	1 1 "-8						
5	WNP-2-25207133	N1C	A325 Gr. B	, 1"-8						
6	WNP-2-25207770	N1N	SA194 Gr. 2H	5/8"-11						
7	WNP-2-25200231	N2A	A194 Gr. 7	7/8"-9						
8	WNP-2-25208743	N1J	A194 Gr. 2H	1-1/8"-8						
9										
•	WNP-2-25208743	N1K	A194 Gr. 2H	1-1/8"-8						
10	WNP-2-25208743 WNP-2-25212964	N1K N1M	A194 Gr. 2H A194 Gr. B8	1-1/8"-8 1 "-20						
				•						
10	WNP-2-25212964	N1M	A194 Gr. B8	1 "−20						

Sample ID#: WNP-2-25131211
Lab ID#: B1G
Fastener Description: . Bolt 1/2" x 1"
Description of Sample Stock Location: G02L02I01
Material Specification as Documented by Licensee Records: A325 Type 2
Note: Action taken to change description to Type 1
Head Marking (Specification and Manufacturer): A325 BTP
Class/Procurement Level: QC1 Commercial
General Plant Application (e.g., Pressure Boundary, Structural):
Structural
Vendor: John Perine Co., Inc., 820 S. Adams, Seattle, WA 98108
QA Requirements Imposed on Vendor: C of C
Comments: Non-safety related - meets specification of A325 Type 1.
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Licensee Representative:
Signature Rlaw Date 1-8-86
NRC Representative:
Signature

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mechanical Analysis





Chemical	Analysis	

ID#	llardness	UTS	0.2% YS*	С	Mn	Si	P	S	Cr	Hi	Мо	Cu	Ti	Y
B1G	HRC 26.0	N/A	N/A	0.35	1.11	0.20	0.016	0.028	0.10	0.12	0.02	0.24	N/A	N/A

Note: UTS - Ultimate Heat Strength; YS - Yield Strength; C - Carbon; Mn - Manganese; Si - Silicon; P - Phosphorus; S - Sulfur; Cr - Chromium; Ni - Nickel; Mo - Molybdenum; Cu - Copper; Ti - Titanium; Y - Yanadium

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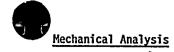
Sample ID#: WNP-2-25100376
Lab ID#: B2A, B2B, B2C
Fastener Description: Stud 1½" x 9"
Description of Sample Stock Location: A01F04I01 #17
Material Specification as Documented by Licensee Records: A193 Gr. B7
Head Marking (Specification and Manufacturer): B7 CIP
Class/Procurement Level: QC2
General Plant Application (e.g., Pressure Boundary, Structural): Structural
Vendor: Unknown
QA Requirements Imposed on Vendor: Unknown
Comments: Non-safety related - meets specification of A193 Gr. B7.
Licensee Representative: Signature Date 1-6-68
NRC Representative: Signature Of 18/88

Chemical Analysis

0.93

- 0.26

0.40



HRC 33.5

N/A

N/A

B2A





<0.01

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IÔ#	Hardness	UTS	0.2% YS*	С	Mn	Si	P	ŝ	Cr	Ni	Мо	Cu	Ti	Y

0.024

0.021

1.02

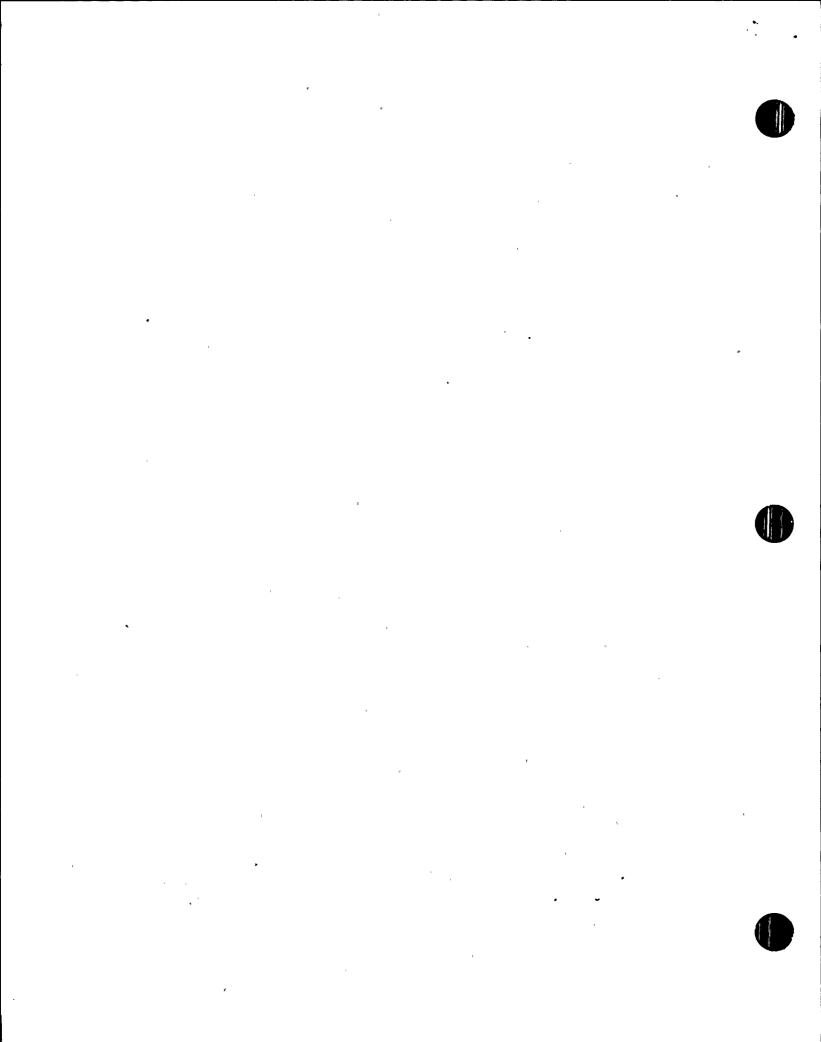
0.08

0.16

0.09

<0.01

Note: UTS - Ultimate Heat Strength; YS - Yield Strength; C - Carbon; Mn - Manganese; Si - Silicon; P - Phosphorus; S - Sulfur; Cr - Chromium; Ni - Nickel; Mo - Molybdenum; Cu - Copper; Ti - Titanium; Y - Yanadium



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Sample ID#: WNP-2-25100376
Lab ID#: B2A, B2B, B2C
Fastener Description: Stud 1½" x 9"
Description of Sample Stock Location: A01F04I01 #17
Material Specification as Documented by Licensee Records: A193 Gr. B7
Head Marking (Specification and Manufacturer): B7 CIP
Class/Procurement Level: QC2
General Plant Application (e.g., Pressure Boundary, Structural):
Structural
Vendor: Unknown
QA Requirements Imposed on Vendor: Unknown
Comments: Non-safety related - meets specification of A193 Gr. B7.
Licensee Representative:
Signature Rays Date 1-8-88
NRC Representative: Signature Date 1/8/88

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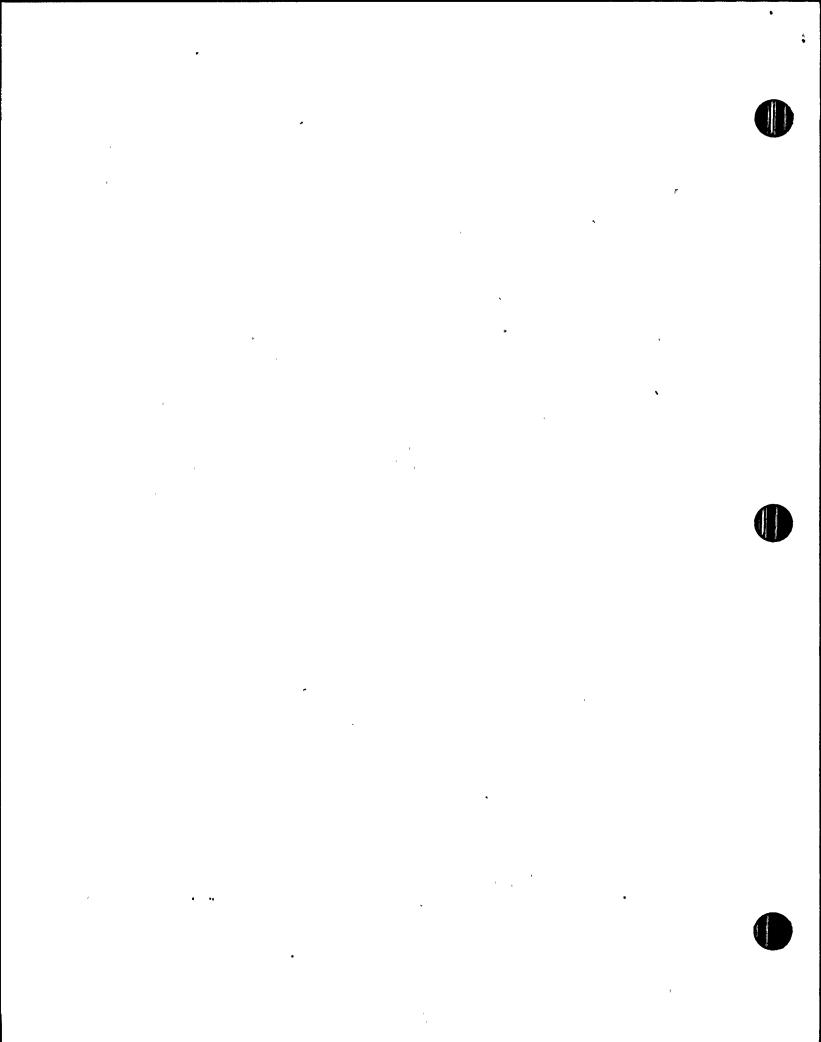
Chemical Analysis





ID#	Hardness	UTS	0.2% YS*	С	Mn	Si	P =	S	Cr	Ni	Мо	Cu	Ti	¥
B2B	HRC 30.5	N/A	A/K	0.40	0.92	0.26	0.020	0.017	1.03	0.14	0.15	0.08	<0.01	∠0.01

Note: UTS - Ultimate Heat Strength; YS - Yield Strength; C - Carbon; Mn - Manganese; Si - Silicon; P - Phosphorus; S - Sulfur; Cr - Chromium; Ni - Nickel; Mo - Molybdenum; Cu - Copper; Ti - Titanium; Y - Vanadium





Chemical Analysis

0.37

0.91

Mechanical Analysis

HRC 23.5

B2C

N/A

N/A





N/A

N/A

0.12

	÷													
ID#	llardness	UTS	0.2% YS*	C	Mn	Si	P	s ·	Cr	Ni	Мо	Cu	Ti	Y

0.018

0.021

1.02

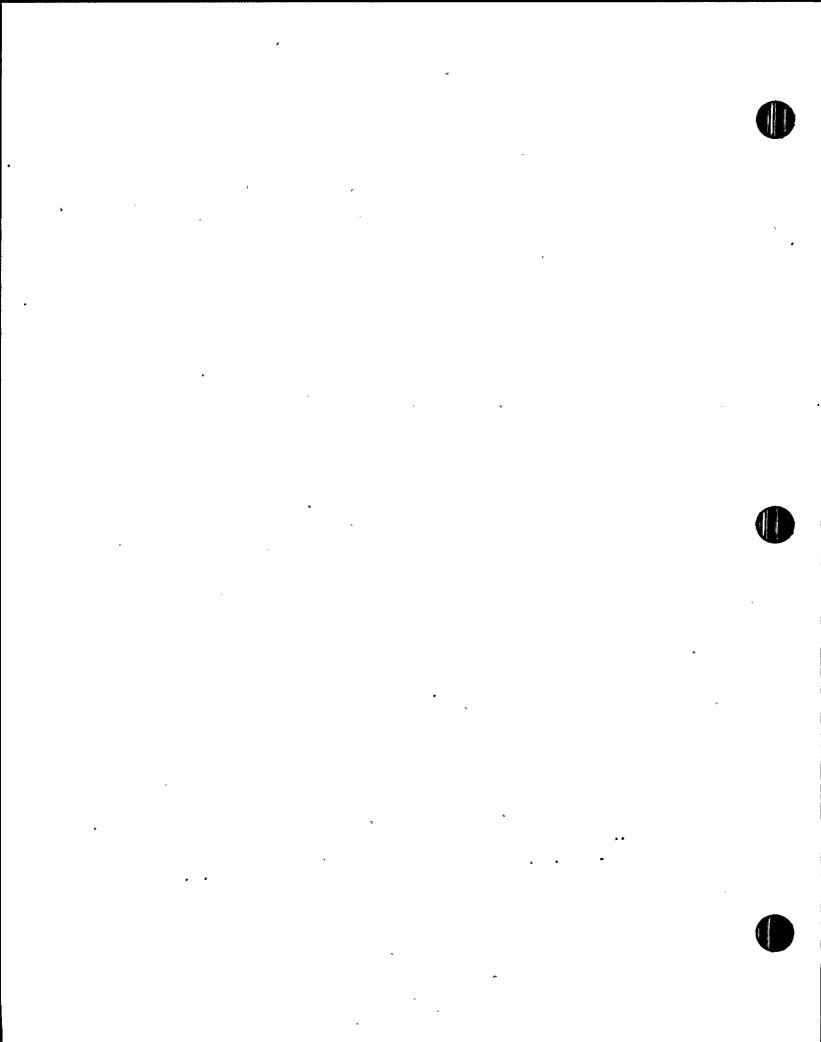
0.08

0.15

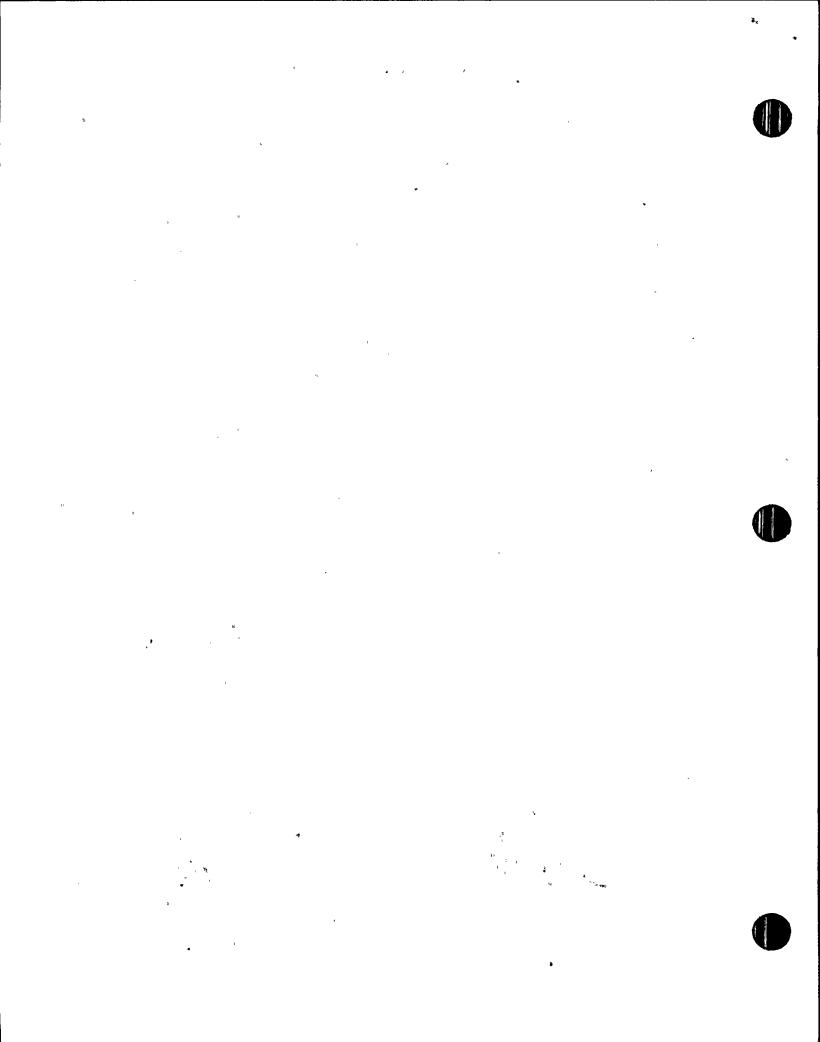
0.27

Note: UTS - Ultimate Heat Strength; YS - Yield Strength; C - Carbon; Mn - Manganese; Si - Silicon; P - Phosphorus; S - Sulfur; Cr - Chromium; Ni - Nickel; Mo - Molybdenum; Cu - Copper; Ti - Titanium; Y - Yanadium

^{*}Proof Load



Sample ID#: WNP-2-25116343
Lab ID#: B1B
Fastener Description: Bolt 1" x 3"
Description of Sample Stock Location: 0207524A0
Material Specification as Documented by Licensee Records: A325 Gr. B
Note: Action taken to change description to Type 1
Head Marking (Specification and Manufacturer): A325
Class/Procurement Level: QC1
General Plant Application (e.g., Pressure Boundary, Structural):
Structural
Vendor: Ray Bristow Co., 1640 NW 14th Avenue, Portland, OR 97209
,
QA Requirements Imposed on Vendor: C of C and CMTR
Comments: Non-safety related - meets specifications of A325 Type 1.
· · · · · · · · · · · · · · · · · · ·
Licensee Representative:
Signature RKQ NA Date 1-6-65
NRC Representative:
Signature Date Date





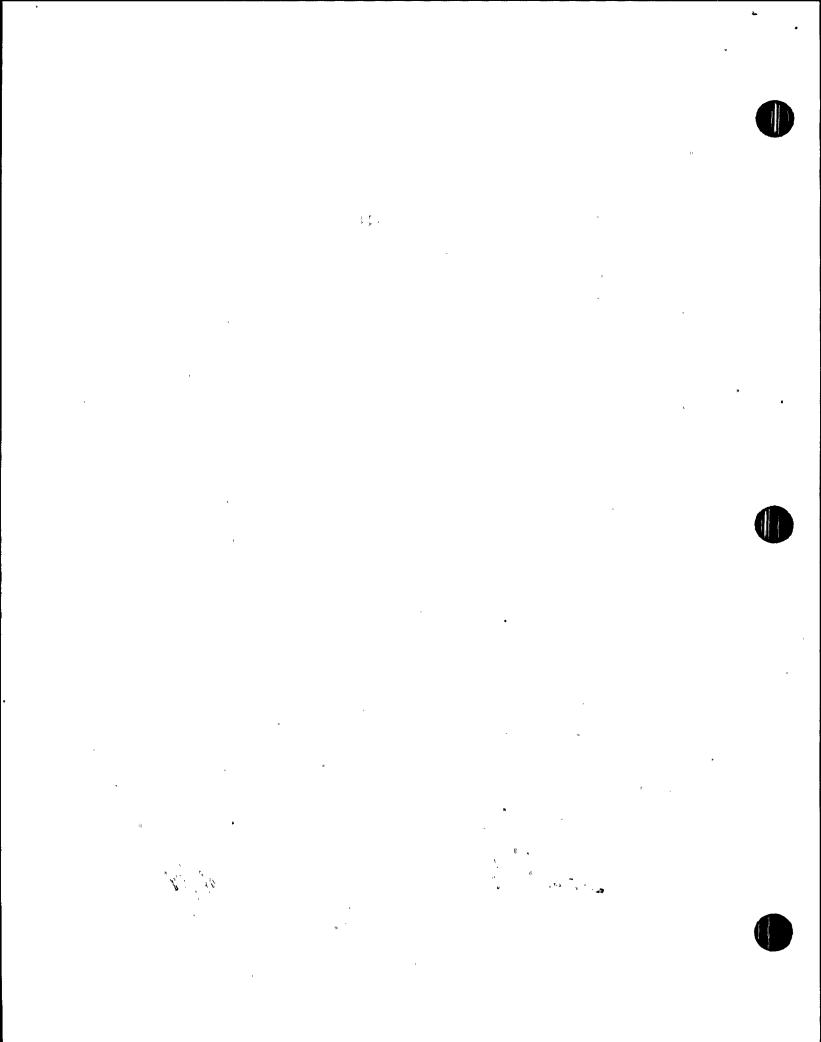


chanical Analy	sis	Chemical	Analysis

ID#	Hardness	UTS	0.2% YS*	С	Mn	Si	P	S -	Cr	Ni	Мо	Cu	Ti	Y
							•	•						
B1B	HRC 32.0	N/A	N/A	0.42	0.94	0.25	0.005	0.021	0.03	0.06	0.01	0.08	<0.01	<0.01

Note: UTS - Ultimate Heat Strength; YS - Yield Strength; C - Carbon; Mn - Manganese; Si - Silicon; P - Phosphorus; S - Sulfur; Cr - Chromium; Ni - Nickel; Mo - Molybdenum; Cu - Copper; Ti - Titanium; Y - Yanadium

Sample ID#: WNP-2-25103995
Lab ID#: B2E, NRC2
Fastener Description: Bolt 5/8" x 6" x
Description of Sample Stock Location: GO2K13IO1
,
Material Specification as Documented by Licensee Records: A449
Galvanized Cadmium
Head Marking (Specification and Manufacturer): KS
Class/Procurement Level: G
General Plant Application (e.g., Pressure Boundary, Structural):
Structural ·
Vendor: John Perrine Co., 820 South Adams, Seattle, WA '98108'
QA Requirements Imposed on Vendor: N/A
Comments: Non-safety related - chemical analysis redone due to high manganes
content - probably typing mistake, reanalysis confirms acceptability to A449
specification:
Licensee Representative:
Signature RRane Date 1-6-68
NRC Representative:
Signature



Mechanical Analysis





Chemical Analysis

ID# :	Hardness	UTS	0.2% YS*	C	Mn	Si	P	S	Cr	Ni	Мо	Cu	Ti	γ
B2E	HRC 32.5	N/A	N/A	0.36	0.73	0.23	0.023	0.012	0.10	0.07	0.01	0.16	N/A	N/A

Note: UTS - Ultimate Neat Strength; YS - Yield Strength; C - Carbon; Mn - Manganese; Si - Silicon; P - Phosphorus; S - Sulfur; Cr - Chromium; Ni - Nickel; Mo - Molybdenum; Cu - Copper; Ti - Titanium; Y - Yanadium

Sample ID#: WNP-2-25100565	• 1
Lab ID#: B2D	· work
Fastener Description: Stud 7/8" x 6"	
Description of Sample Stock Location: A01F04I01	
	·
Material Specification as Documented by Licensee Records:	A193 Gr. B8
Head Marking (Specification and Manufacturer): 88 *	
Class/Procurement Level: OC2	
General Plant Application (e.g., Pressure Boundary, Struc	ctural):
Structural	
Vendor: John Perine Co., 820 South Adams, Seattle, WA 9	98108
QA Requirements Imposed on Vendor: C of C and CMTR	
· · · · · · · · · · · · · · · · · · ·	
Comments: Non-safety related, results indicate higher val	ue of hardness,
possibly bolt is A193 Gr. B8 Class 2. Another bolt from	same lot was sent for
testing. Results confirm high hardness. Since yield str	ength is less than
90,000 psi, use on non-safety related applications does n	not pose any problem.
Licensee Representative:	;
Signature Range	Date 1-6-88
NRC Representative:	
Signature 69/50	Date 1/8/88
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Mechanical Analysis





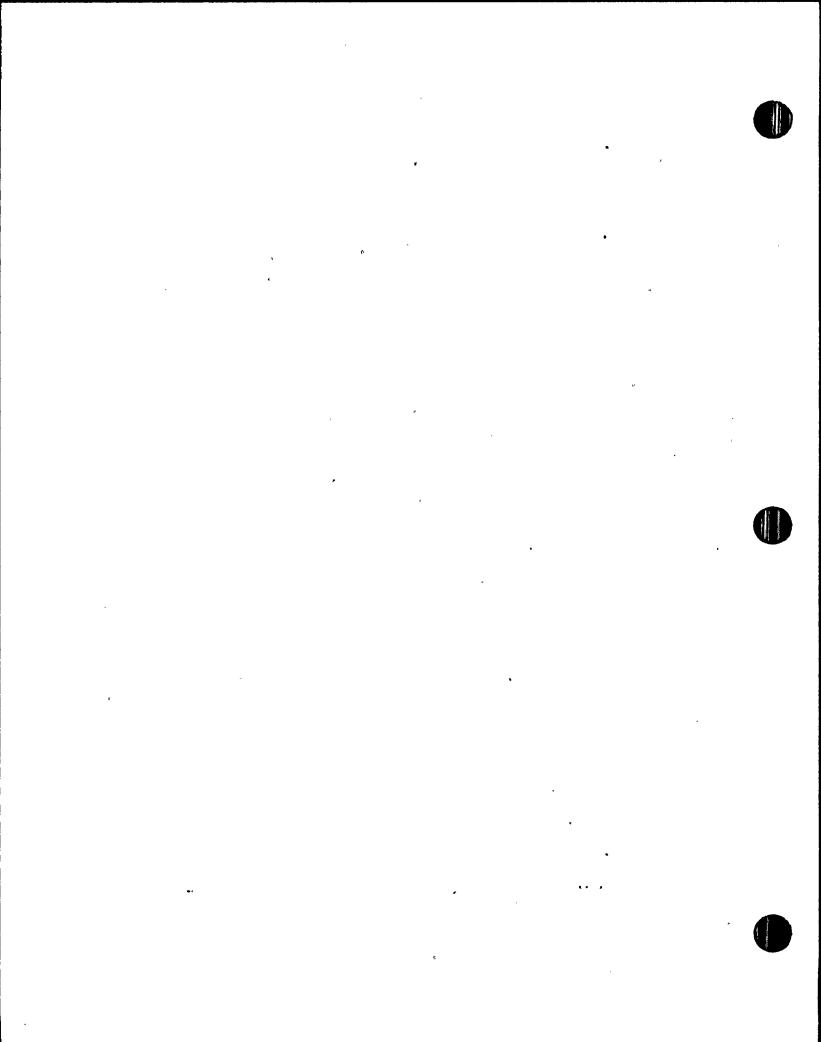
Chemical Analysis

	ID#	Hardness	UTS	0.2% YS*	С	Mn	Si	Р	S	Cr	Ni	Мо	Cu	Ti	y
Initial Test	82D	HRC 27.5*	N/A	N/A	0.07	0.68	0.35	0.027	0.015	18.62	8.24	0.30	0.27	0.04	0.07
Retest	82D	HRC 30.5*	120,00	0 68,400											•
Second Sample	B2D	HRC 31.0*	121,80	0 80,800	0.06	0.66	0.33	0.026	0.013	18.59	8.25	0.30	• 0.24	0.03	0.05

*Out of specified range

Note: UTS - Ultimate Heat Strength; YS - Yield Strength; C - Carbon; Mn - Manganese; Si - Silicon; P - Phosphorus; S - Sulfur; Cr - Chromium; Ni - Nickel; Mo - Molybdenum; Cu - Copper; Ti - Titanium; V - Vanadium

^{*}Proof Load



Sample ID#: WNP-2-25127690
Lab ID#: B2G, B2H
Fastener Description: Bolts 1-1/8" x 5½"
Description of Sample Stock Location: 3I1I06E02
•
Material Specification as Documented by Licensee Records: A307 Gr. B
·
Head Marking (Specification and Manufacturer): Y
Class/Procurement Level: QC2
General Plant Application (e.g., Pressure Boundary, Structural):
Structural´
Vendor: Ray Bristow Co., 1640 NW 14th, Portland, OR 97209
• • • • • • • • • • • • • • • • • • • •
QA Requirements Imposed on Vendor: C of C and CMTR
· · · · · · · · · · · · · · · · · · ·
Comments: Non-safety related - meets specification of A307 Gr. B.
Licensee Representative:
Signature RRaws Date 1-6-85
NRC Representative: Signature Date

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Mechanical Analysis Chemical Analysis



ID#	Hardness	UTS	0.2% YS*	С	Mn	[*] Si	P	s ·	Cr	Ni	Мо	Cu	TÍ	γ
								•	1					
B2G	HRB 71.0	N/A	N/A	0.17	0.64	0.06	0.006	0.018	0.10	0.09	0.01	0.17	<0.01	<0.01

Note: UTS - Ultimate Heat Strength; YS - Yield Strength; C - Carbon; Mn - Manganese; Si - Silicon; P - Phosphorus; S - Sulfur; Cr - Chromium; Ni - Nickel; Mo - Molybdenum; Cu - Copper; Ti - Titanium; Y - Yanadium

Sample ID#: WNP-2-25127690
Lab ID#: B2G, B2H
Fastener Description: Bolts 1-1/8" x 5½"
Description of Sample Stock Location: 3I1I06E02
Material Specification as Documented by Licensee Records: A307 Gr. B
Head Marking (Specification and Manufacturer): Y
Class/Procurement Level: QC2
General Plant Application (e.g., Pressure Boundary, Structural):
Structural .
Vendor: Ray Bristow Co., 1640 NW 14th, Portland, OR 97209
QA Requirements Imposed on Vendor: C of C and CMTR
Comments: Non-safety related - meets specification of A307 Gr. B.
· · · · · · · · · · · · · · · · · · ·
Licensee Representative:
Signature RRows Date 1-8-88
NRC Representative: Signature 69/88

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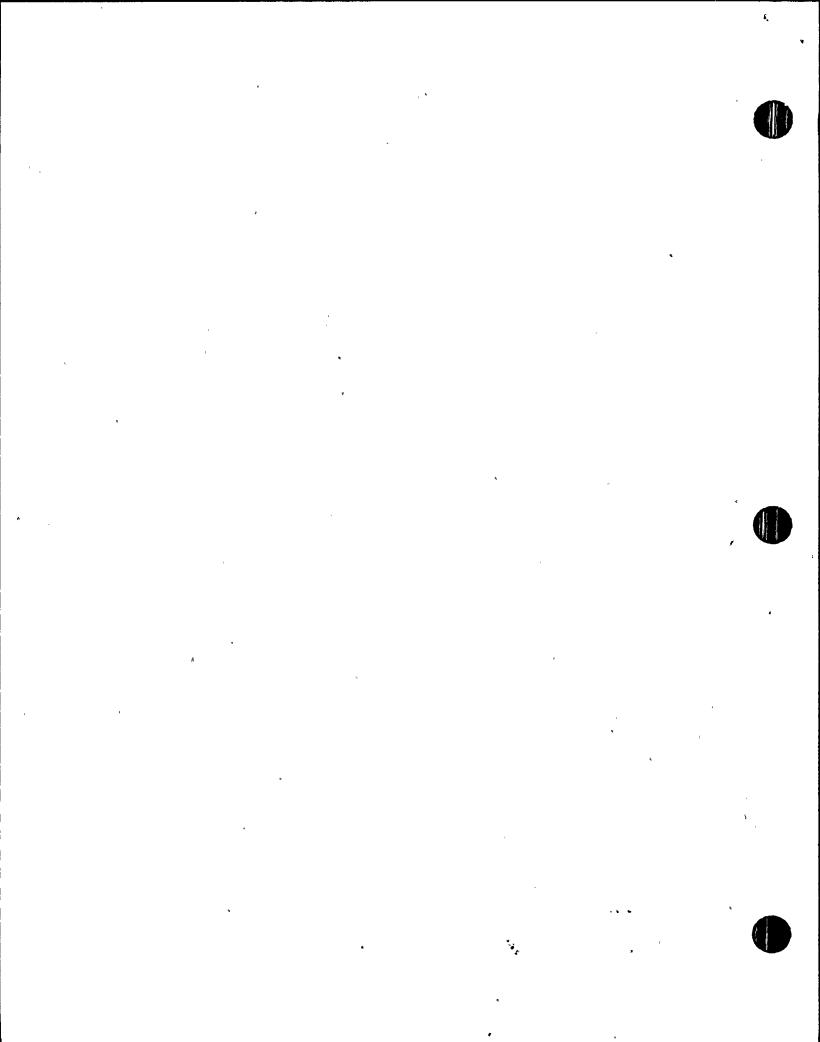




Chemical Analysis

ID#	Hardness	UTS	0.2% YS*	. C	Mn .	. Si	P	s `	Cr	Ni	Мо	Cu Ti	Y
B2H	HRB 71.5	N/A	N/A	0.16	0.66	0.07	0.004	0.015	0.09	0.10	0.01	0.17 <0.01	<0.01

Note: UTS - Ultimate Heat Strength; YS - Yield Strength; C - Carbon; Mn - Manganese; Si - Silicon; P - Phosphorus; S - Sulfur; Cr - Chromium; Ni - Nickel; Mo - Molybdenum; Cu - Copper; Ti - Titanium; Y - Yanadium



Sample ID#: WNP-2-25100236
Lab ID#: B2F
Fastener Description: Machine Screw 1/4" x 6"-20
Description of Sample Stock Location: G02K01C02
Material Specification as Documented by Licensee Records: A354 Gr. BC
Action has been taken to excess these machine screws.
Head Marking (Specification and Manufacturer): N/A
Class/Procurement Level: G
General Plant Application (e.g., Pressure Boundary, Structural):
Structural.
Vendor: Ray Bristow Co., 1819 SW Court Avenue, Pendleton, OR 97801
QA Requirements Imposed on Vendor: N/A
* * · · · · · · · · · · · · · · · · · ·
Comments: Non-safety related, test results indicate cap screw to be A307 Gr. B
or ANSI B18,6.3. Purchase order did not specify any ASTM grade, only require-
ment what was P.O. specified "stove bolt zinc chromate". No impact on plant
safety.
Licensee Representative:
Signature RRune Date 1-8-88
NRC Representative:
Signature

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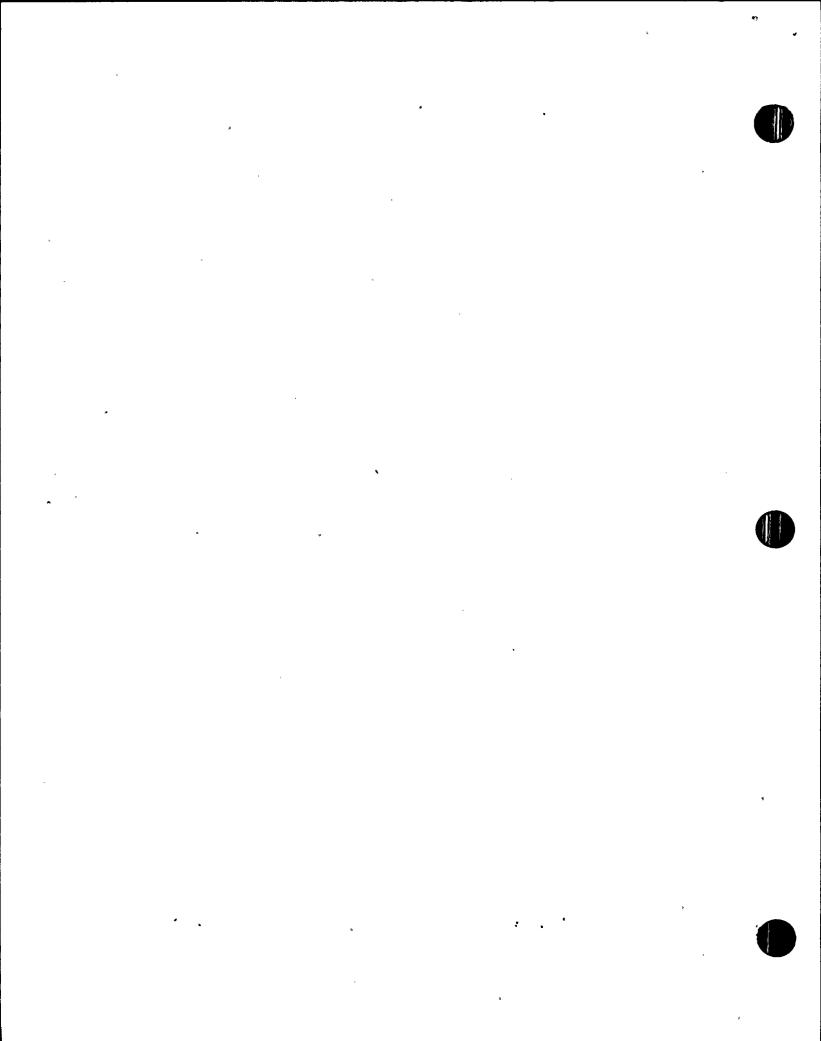


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Mechanical Analysis Chemical Analysis

ID#	Hardness	UTS	0.2% YS*	С	Mn	Si	Р	S	Cr	Ni	Мо	Cu	Ti	ν
B2F	HRB 75.0	N/A	N/A	0.08	0.40	<0.01	0.014	0.024	0.02	0.01	0.01	0.01	<0.01	<0.01

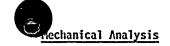
Note: UTS - Ultimate Heat Strength; YS - Yield Strength; C - Carbon; Mn - Manganese; Si - Silicon; P - Phosphorus; S - Sulfur; Cr - Chromium; Ni - Nickel; Mo - Molybdenum; Cu - Copper; Ti - Titanium; Y - Yanadium



Sample ID#: WNP-2-25207154
Lab ID#: N1B, N1D
Fastener Description: Nut ½"
Description of Sample Stock Location: 0207542
Material Specification as Documented by Licensee Records: A325 Gr. B
Head Marking (Specification and Manufacturer): B S R (*see comments)
Class/Procurement Level: 0C1
General Plant Application (e.g., Pressure Boundary, Structural): Structural
Vendor: Guyon Alloys, 3400 Rogerdale Road, Houston, TX 77042
QA Requirements Imposed on Vendor: C of C
Comments: *Markings do not meet the requirements of ASTM A325 Type 1, 2, 3 nuts.
Review indicates that these nuts are hex nuts rather then heavy hex as specified
in the procurement documents. Chemical analysis satisfies the requirements of
A325 Type 1, 2, 3 nuts. Further evaluation is underway to determine safety
significance and its impact.
Licensee Representative:
Signature Rkang Date 1-8-84
NRC Representative: Signature Date 1/8/88
Signature

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Chemical Analysis

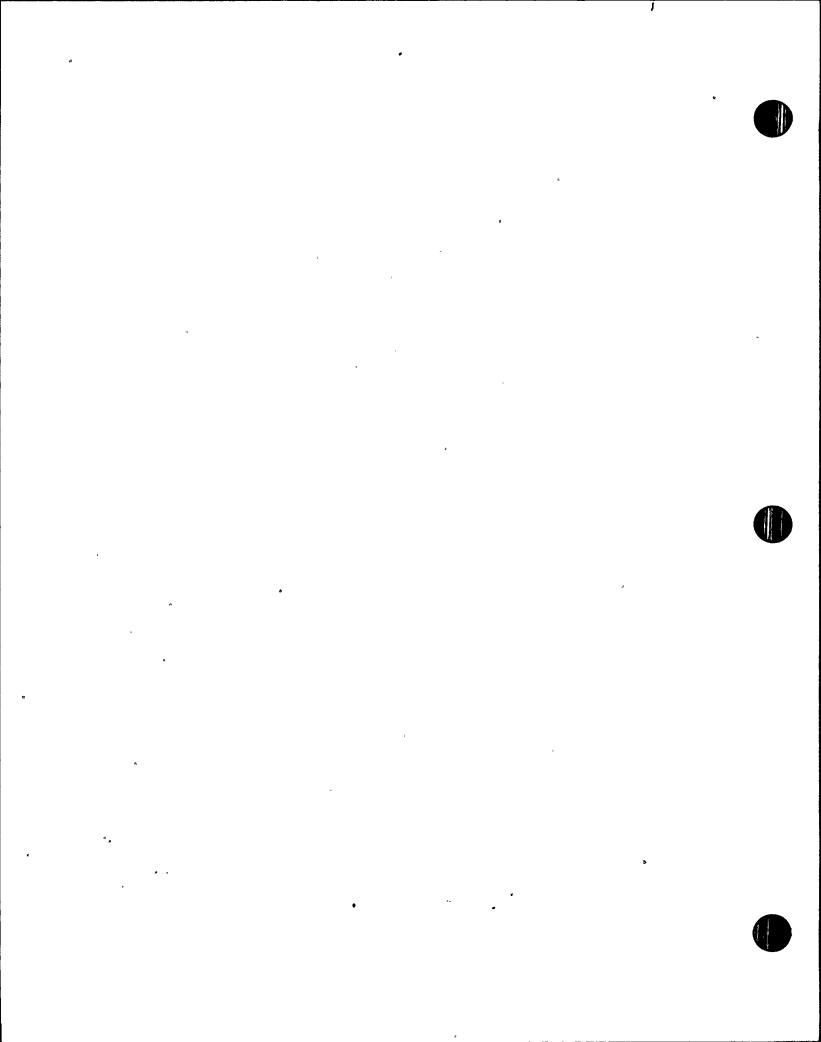




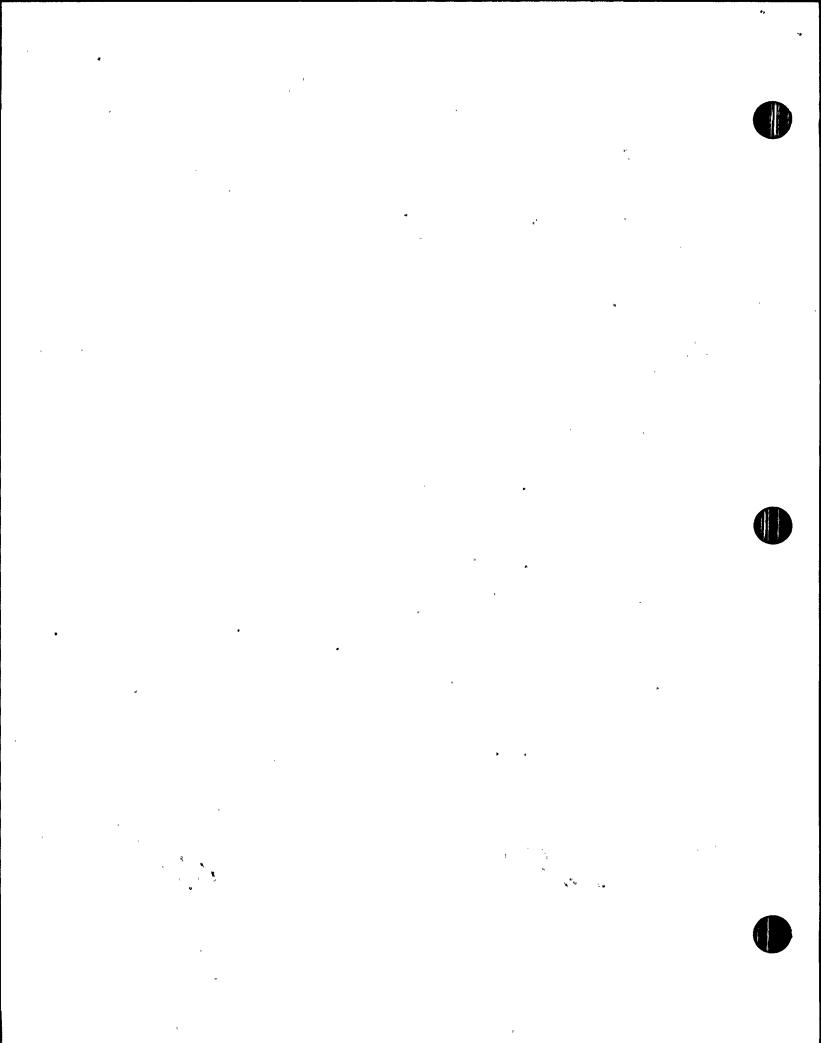


ID#	Hardness	UTS	0.2% YS*	C	Mn	Si	P	S	Cr	Nf	Мо	Cu	Ti	<u>v</u>
N10	NDB 06 U	N/A	N/A	0.11	0.67	0.32	0.103	0.031	0.58	0.62	0.10	0.28	<0.01	⟨0.01

Note: UTS - Ultimate Heat Strength; YS - Yield Strength; C - Carbon; Mn - Manganese; Si - Silicon; P - Phosphorus; S - Sulfur; Cr - Chromium; Ni - Nickel; Mo - Molybdenum; Cu - Copper; Ti - Titanium; V - Yanadium



Sample ID#: WNP-2-25206615
Lab ID#: N1P, N1Q, N1R, N1U
Fastener Description: Nuts 1½"
Description of Sample Stock Location: 3G1G06E01
Material Specification as Documented by Licensee Records: A194 Gr. 2H
Head Marking (Specification and Manufacturer): J 1 S 2H
Class/Procurement Level: QC1
General Plant Application (e.g., Pressure Boundary, Structural):
Vendor: Coast Industrial Co., 2612 2nd Avenue, Seattle, WA 98134
QA Requirements Imposed on Vendor: C of C and CMTR
Comments: Non-safety related - meets specification of A194 Gr. 2H.
Licensee Representative:
Signature Rans Date 1-5-85
NRC Representative: Signature Date 1/8/88
0.3





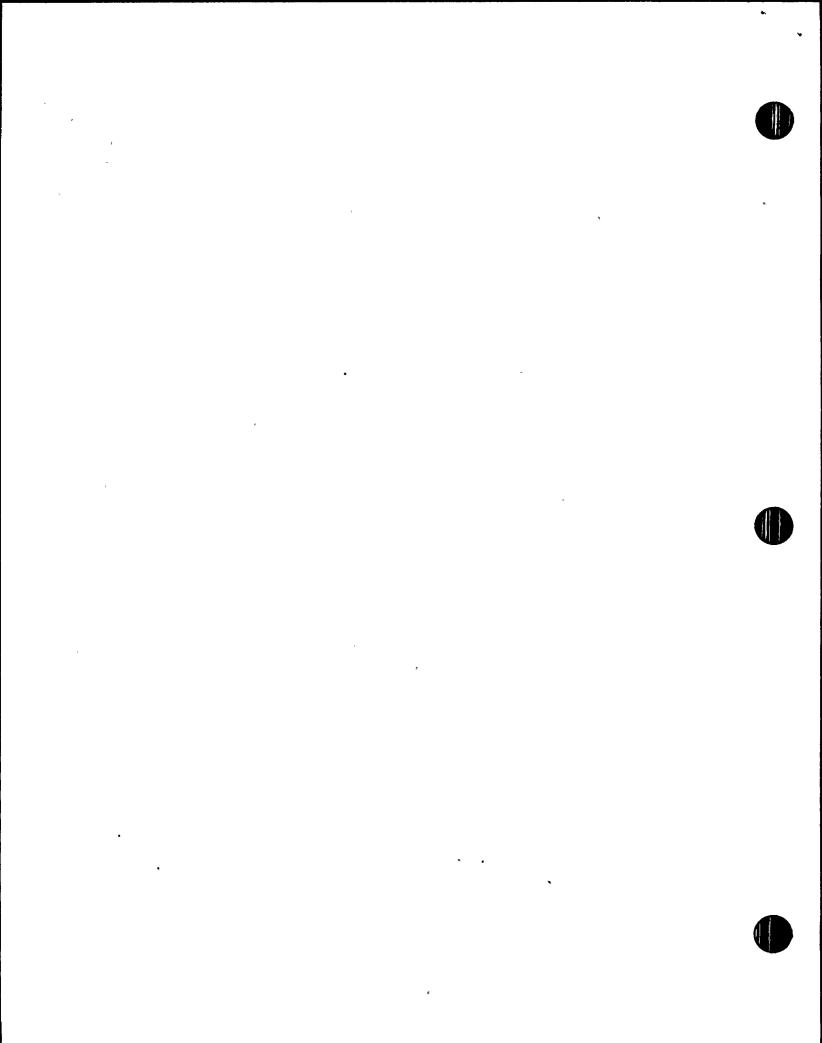


Mechanical Analysis Chemical Analysis

ID#	Hardness	UTS	0.2% YS*	С	Mn	Si `	P	S	Cr	หร	Мо	Cu	Ti	γ
N1P	HRC 26.0	N/A	N/A	0.49	0.77	0.21	0.011		0.10	0.13	0.02	0.17	<0.01	<0.01

Note: UTS - Ultimate Heat Strength; YS - Yield Strength; C - Carbon; Mn - Manganese; Si - Silicon; P - Phosphorus; S - Sulfur; Cr - Chromium; Ni - Nickel; Mo - Molybdenum; Cu - Copper; Ti - Titanium; Y - Yanadium

^{*}Proof Load



Sample ID#: WNP-2-25206615
Lab ID#: N1P, N1Q, N1R, N1U
Fastener Description: Nuts 1%
Description of Sample Stock Location: 3G1G06E01
Material Specification as Documented by Licensee Records: A194 Gr. 2H
Head Marking (Specification and Manufacturer): J 1 S 2H
Class/Procurement Level: QC1
General Plant Application (e.g., Pressure Boundary, Structural):
Vendor: Coast Industrial Co., 2612 2nd Avenue, Seattle, WA 98134
QA Requirements Imposed on Vendor: C of C and CMTR
Comments: Non-safety related - meets specification of A194 Gr. 2H.
Licensee Representative:
Signature RRows . Date 1-6-88
NRC Representative: Signature Date 1/8/88

Chemical Analysis

Mechanical Analysis



ID#	Hardness	UTS	0.2% YS*	С	Mn	Si	P	S	Cr	Ni	Мо	Cu	Tí	Y
		•												-
มาก	HRC 27 5	N/A	N/A	0.50	0.78	0.22	0.010	0.029	0.10	ი 13	0.02	0 17	∠0.01	< 0.01

Note: UTS - Ultimate Heat Strength; YS - Yield Strength; C - Carbon; Mn - Manganese; Si - Silicon; P - Phosphorus; S - Sulfur; Cr - Chromium; Ni - Nickel; Mo - Molybdenum; Cu - Copper; Ti - Titanium; V - Yanadium

Sample ID#: WNP-2-25206615
Lab ID#: N1P, N1Q, N1R, N1U
Fastener Description: Nuts 1½"
Description of Sample Stock Location: 3G1G06E01
Material Specification as Documented by Licensee Records: A194 Gr. 2H
Head Marking (Specification and Manufacturer): J 1 S 2H
Class/Procurement Level: QC1
General Plant Application (e.g., Pressure Boundary, Structural):
Pressure Boundary
Vendor: Coast Industrial Co., 2612 2nd Avenue, Seattle, WA 98134
QA Requirements Imposed on Vendor: C of C and CMTR

Comments: Non-safety related - meets specification of A194 Gr. 2H.
• · · · · · · · · · · · · · · · · · · ·
Licensee Representative:
Signature Rang Date 1-6-88
NRC Representative: Signature Date 1/8/88
Signature Date 1/8/88

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Mechanical Analysis

Chemical Analysis

ID#	Hardness	UTS	0.2% YS*	С	Mn .	Si	. Ь.	·s.	Cr ·	Ni	Мо	Cu	Ti	γ
N1R	HRC 26.5	N/A .	N/A	0.50	0.77	0.22	0.010	0.029	0.01	0.14	0.02	0.17	<0.01	<0.01

Note: UTS - Ultimate Heat Strength; YS - Yield Strength; C - Carbon; Mn - Manganese; Si - Silicon; P - Phosphorus; S - Sulfur; Cr - Chromium; Ni - Nickel; Mo - Molybdenum; Cu - Copper; Ti - Titanium; V - Vanadium

Sample ID#: WNP-2-25207133	
Lab ID#:_N1C	
Fastener Description: Nut 1"	
Description of Sample Stock Location: 0207544	
Material Specification as Documented by License	ee Records: A325 Gr. B
Change matcode to A563 Gr. C3	·
Head Marking (Specification and Manufacturer):	B T S () 3 WR
Class/Procurement Level: QC1	
General Plant Application (e.g., Pressure Bound	dary, Structural):
Structural	•
Vendor: Guyon Alloys, 3400 Rogerdale Road, Hou	uston, TX 77042
QA Requirements Imposed on Vendor: C of C	
Comments: Non-safety related - meets specification	ation of A563 Gr. C3
. ,	
	1
Licensee Representative:	
Licensee Representative: Signature RQW	Date_ 1-8-88

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Mechanical Analysis

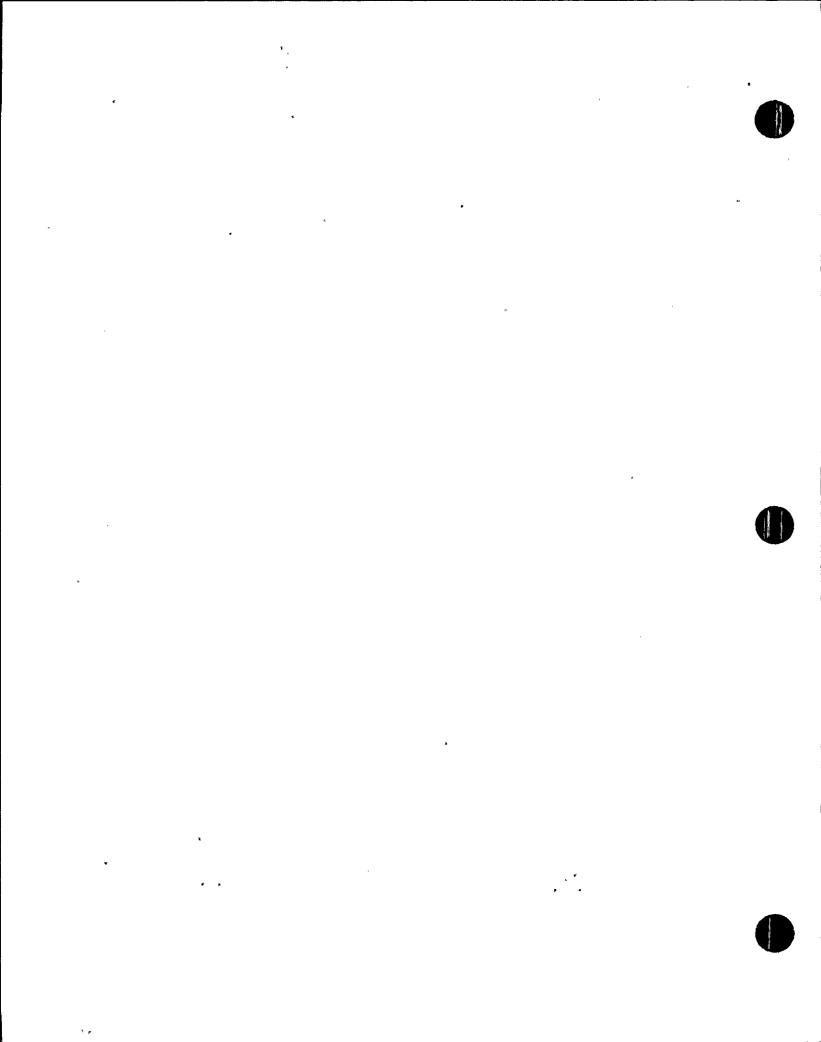




Chemical Analysis

ID#	llardness	UTS	0.2% YS*	С	Mn	Si	P	S	Cr	Ni	Мо	Cu	Ti	γ
N1C	HRC 25.5	N/A	N/A	0.22	1.02	0.21	0.017	0.014	0.53	0.28	0.01	0.23	۷0.01	40.01

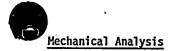
Note: UTS - Ultimate Heat Strength; YS - Yield Strength; C - Carbon; Mn - Manganese; Si - Silicon; P - Phosphorus; S - Sulfur; Cr - Chromium; Ni - Nickel; Mo - Molybdenum; Cu - Copper; Ti - Titanium; V - Yanadium



Sample ID#: WNP-2-25207770
Lab ID#: N1N
Fastener Description: Nut 5/8"
Description of Sample Stock Location: 3I1I04C01
Material Specification as Documented by Licensee Records: SA194 Gr. 2H
ASME III/1
Head Marking (Specification and Manufacturer): J 82S 2H
Class/Procurement Level: QC1
General Plant Application (e.g., Pressure Boundary, Structural):
Pressure Boundary
Vendor: Coast Industrial Supply Co., 2512 2nd Avenue, Seattle, WA 98121
QA Requirements Imposed on Vendor: C of C and CMTR
Comments: Non-safety related - meets specification of SA194 Gr. 2H ASME III/1
, .
•
Licensee Representative:
Signature RKGW9 Date 1-8-88
NRC Representative:
Signature Date Date

(6)

Chemical Analysis







ID#	Hardness	UTS	0.2% YS*	С	Mn	Si	P	S	Cr	Ni	Мо	Cu	Ti	Y
								·						B·
NIN	HRC 27.0	N/A	.·N/A	0.48	0.68	0.20	0.010	0.022	0.02	. 0.02	0.01	0.03	<0.01	<0.01

Note: UTS - Ultimate Heat Strength; YS - Yield Strength; C - Carbon; Mn - Manganese; Si - Silicon; P - Phosphorus; S - Sulfur; Cr - Chromium; Ni - Nickel; Mo - Molybdenum; Cu - Copper; Ti - Titanium; V - Yanadium

Sample ID#: WNP-2-25200231
Lab ID#: N2A ·
Fastener Description: Nut 7/8"
Description of Sample Stock Location: G02K15G02
Material Specification as Documented by Licensee Records: A194 Gr. 7
Action taken to change matcode to A194 Gr. 4.
Head Marking (Specification and Manufacturer): U 4
Class/Procurement Level: QC2
General Plant Application (e.g., Pressure Boundary, Structural):
Structural
Vendor: Unknown · · · · · · · · · · · · · · · · · · ·
QA Requirements Imposed on Vendor: Unknown
Comments: Non-safety related - chemical analysis redone to verify marking to
A194 Gr. 4.
· · · · · · · · · · · · · · · · · · ·
Licensee Representative:
Signature KKGWS Date 1-5-88
NRC Representative:
Signature Date Date





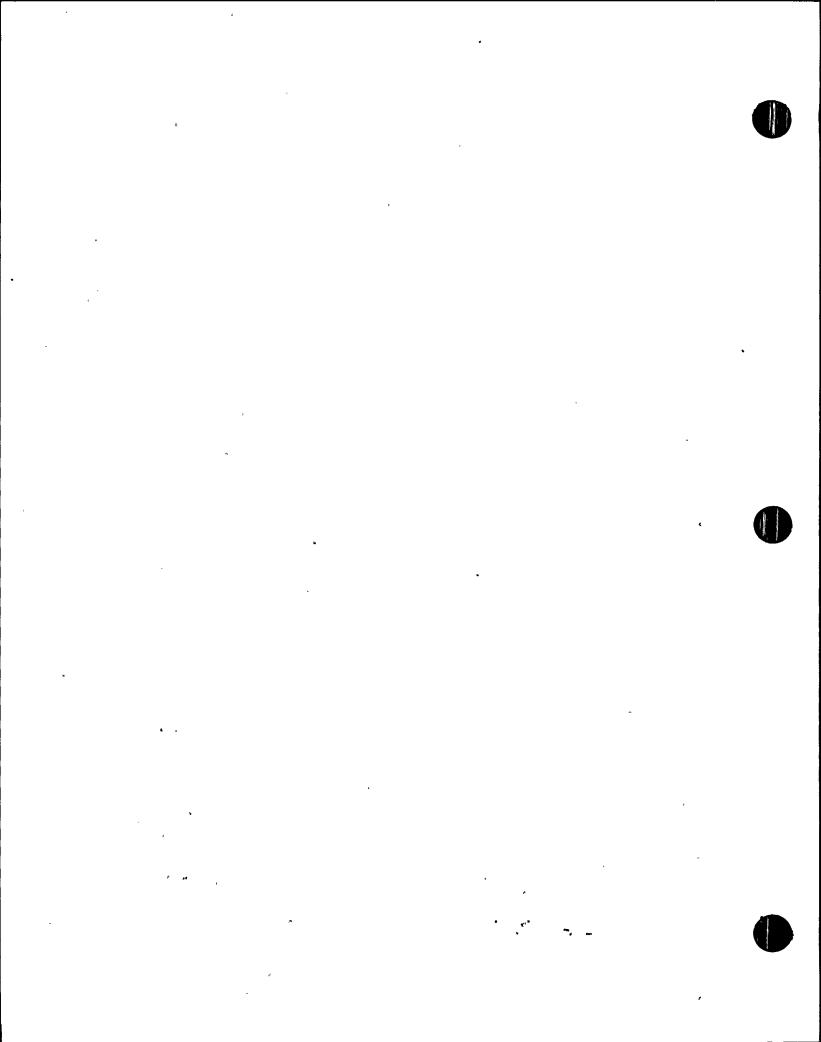


Mechanical Analysis

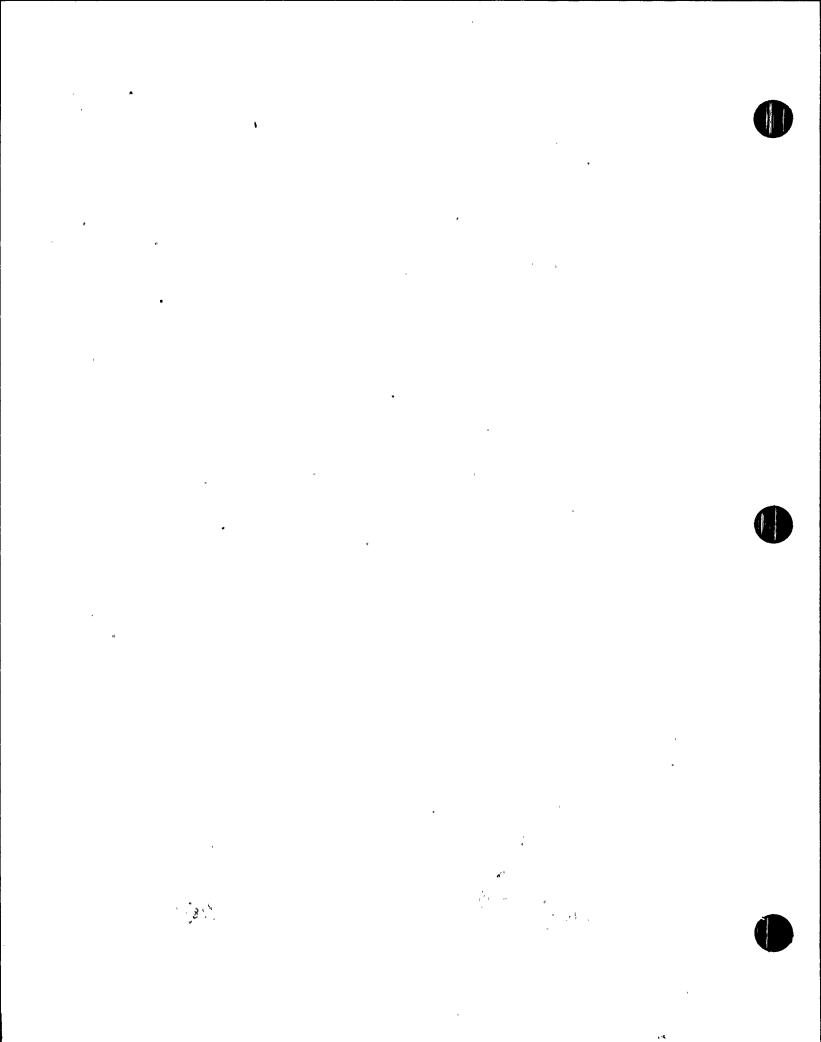
Chemical Analysis

ID#	Hardness	UTS	0.2% YS*	С	Mn	Si .	P	S	Cr	หา	Мо	Cu	Ti	Y
N2A	HRC 29.5	N/A	N/A	0.41	0.79	0.34	0.021	0.016	0.15	0.021	0.22	0.02	40.01	۷۰.01

Note: UTS - Ultimate Heat Strength; YS - Yield Strength; C - Carbon; Mn - Manganese; Si - Silicon; P - Phosphorus; S - Sulfur; Cr - Chromium; Ni - Nickel; Mo - Molybdenum; Cu - Copper; Ti - Titanium; Y - Yanadium



Lab ID#: N1J, N1K Fastener Description: Nut 1-1				
· · · · · · · · · · · · · · · · · · ·				·
Description of Sample Stock Location:	0209G84	 		
	······································		·	•
Material Specification as Documented by	Licensee Reco	ords: <u>A1</u>	94_Gr.	2Н
ASME III/1	 	 		
Head Marking (Specification and Manufac	turer): 2H	J	S	7AF
Class/Procurement Level: <u>OC1</u>		·-··		
General Plant Application (e.g., Pressu	ıre Boundary, S	Structural): <u> </u>	
Pressure Boundary			ь	,
	3			
ı	*			
Vendor: Power and Engineered Products, QA Requirements Imposed on Vendor: C	of C and CMTR	eet, South	Plain	field, NJ
Vendor: Power and Engineered Products, QA Requirements Imposed on Vendor: C Comments: Non-safety related - meets sp	of C and CMTR	eet, South	Plaint	field, NJ
Vendor: Power and Engineered Products, QA Requirements Imposed on Vendor: C	of C and CMTR	eet, South	Plaint	field, NJ
Vendor: Power and Engineered Products, QA Requirements Imposed on Vendor: C Comments: Non-safety related - meets sp	of C and CMTR	eet, South	Plaint	field, NJ
Vendor: Power and Engineered Products, QA Requirements Imposed on Vendor: C Comments: Non-safety related - meets sp test performed due to material size.	of C and CMTR	eet, South	Plaint	field, NJ
Vendor: Power and Engineered Products, QA Requirements Imposed on Vendor: C Comments: Non-safety related - meets sp test performed due to material size.	of C and CMTR	eet, South	Plaint	field, NJ
Vendor: Power and Engineered Products, QA Requirements Imposed on Vendor: C Comments: Non-safety related - meets sp test performed due to material size.	of C and CMTR	eet, South	Plaint	field, NJ
Vendor: Power and Engineered Products, QA Requirements Imposed on Vendor: C Comments: Non-safety related - meets sp test performed due to material size.	of C and CMTR	eet, South	Plaint	field, NJ





Chemical Analysis

ID#	Hardness	UTS	0.2% YS*	С	Mn	Si	P	S	Cr	Ni	Мо	Cu	Ti	γ
N1J	HRC 24.5	N/A	N/A	0.47	0.80	0.18	0.023	0.032	0.39	0.05	0.01	0.01	<0.01	<0.01

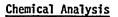
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Note: UTS - Ultimate Heat Strength; YS - Yield Strength; C - Carbon; Mn - Manganese; Si - Silicon; P - Phosphorus; S - Sulfur; Cr - Chromium; Ni - Nickel; Mo - Molybdenum; Cu - Copper; Ti - Titanium; Y - Yanadium

Sample ID#: WNP-2-25208743	
Lab ID#: N1J, N1K	
Fastener Description: Nut 1-1/8"	
Description of Sample Stock Location: 0209G84	
Material Specification as Documented by Licensee Reco	
Head Marking (Specification and Manufacturer): 2H	
Class/Procurement Level: <u>OC1</u>	
General Plant Application (e.g., Pressure Boundary, S	
Pressure Boundary	
Vendor: Power and Engineered Products, 157 Helen Stro	•
QA Requirements Imposed on Vendor: C of C and CMTR	
Comments: Non-safety related - meets specification of test performed due to material size.	f A194 Gr. 2H. No impact
Licensee Representative:	
Signature Row	Date 1-6-66
NRC Representative:	Date 1/8/88

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Mechanical Analysis



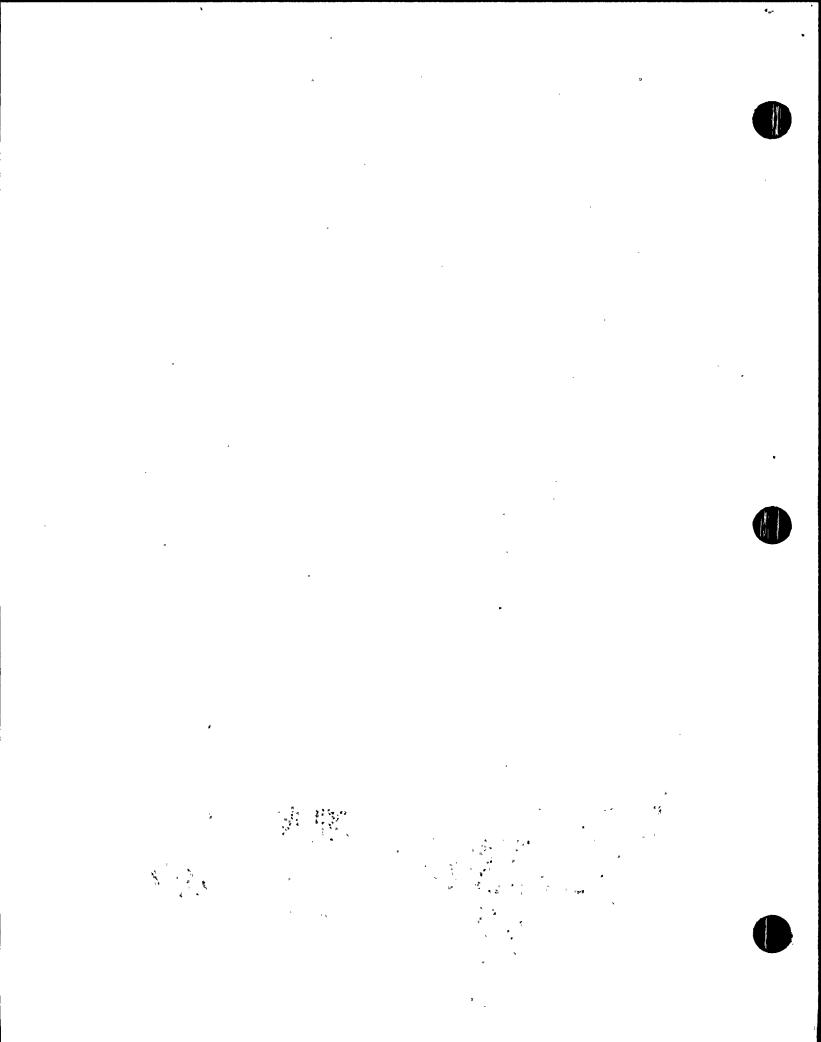
ID#	Hardness	UTS	0.2% YS*	С	Mn	Si	P	s	Cr	- Ni	Мо	Cu	Ti	V
N1K	HRC 24.5	N/A	N/A	0.48	0.80	0.16	0.028	0.034	0.38	0.04	0.01	0.01	<0.01	<0.01

Note: UTS - Ultimate Heat Strength; YS - Yield Strength; C - Carbon; Mn - Manganese; Si - Silicon; P - Phosphorus; S - Sulfur; Cr - Chromium; Ni - Nickel; Mo - Molybdenum; Cu - Copper; Ti - Titanium; Y - Vanadium

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Sample ID#: WNP-2-25212964
Lab ID#: N1M
Fastener Description: Nut 1/4"
Description of Sample Stock Location: G02K02D01
Material Specification as Documented by Licensee Records: A194 Gr. B8
Head Marking (Specification and Manufacturer): B8
Class/Procurement Level: QC1 Commercial
General Plant Application (e.g., Pressure Boundary, Structural):
Structural
Vendor: John Perine Co., Inc., 820 South Adams, Seattle, WA 98108
QA Requirements Imposed on Vendor: C of C
Compared a Non-conference and a most a profit continue of A104 Cm. PO
Comments: Non-safety related - meets specification of A194 Gr. B8.
Licensee Representative:
Signature KKINS Date 1-6-68
NRC Representative: Signature Date 1/8/88
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Mechanical Analysis

Chemical Analysis

ID#	Hardness	UTS	0.2% YS*	С	Mn	Si	P	S	Cr	Ni	Мо	Cu	Ti	Y
 											•			
N1M	HRC 23.5	. N/A	N/A	0.04	1.02	0.56	0.017	0.005	17.63	8.18	0.11	0.16	0.05	. 0.07

Note: UTS - Ultimate Heat Strength; YS - Yield Strength; C - Carbon; Mn - Manganese; Si - Silicon; P - Phosphorus; S - Sulfur; Cr - Chromium; Ni - Nickel; Mo - Molybdenum; Cu - Copper; Ti - Titanium; Y - Yanadium

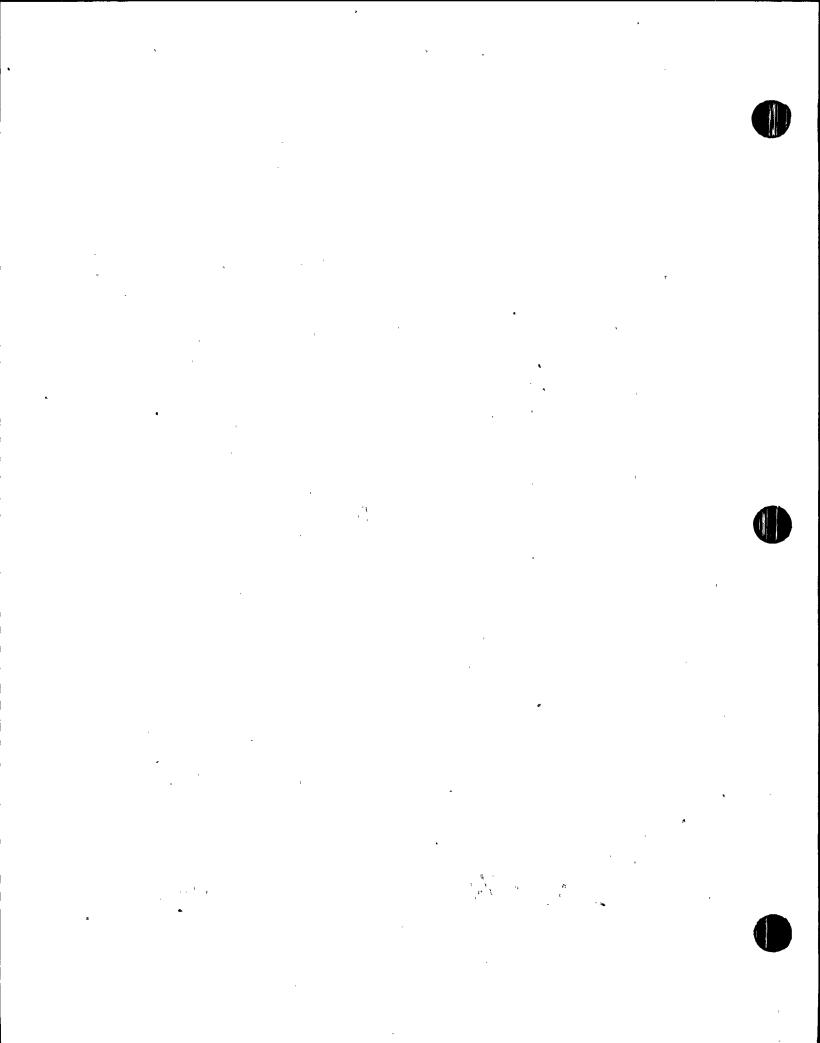
*Proof Load

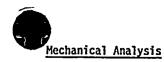
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FASTENER TESTING DATA SHEET

• —	WNP-2-25						
Lab ID#:	N1L						
Fastener Desci	ription:	Nut	1-3/4"			·	
Description of	f Sample St	cock Locatio	n: 0209WB8	30		*************	
Material Spec	ification a	as Documente	d by Licensee	Records	A540	Gr. B23	3
Action ta	ken to add	Class 1 to	matcode descr	ription.			
Head Marking	(Specificat	ion and Man	ufacturer):	A540C			
Class/Procure	ment Level:	QC1					•
General Plant							
Structural				*			•
	ramai mai	ustriai Prod	ducts.3873 V	I. Oquend	o. Las	Vegas.	NA 83TT8
QA Requirement			ducts, 3873 N				
		on Vendor:_		MTR			
	ts Imposed	on Vendor:_	C of C and C	MTR			
QA Requirement	ts Imposed	on Vendor: related - 1	C of C and C	MTR ation re	quireme		
QA Requirement Comments: Class 1.	ts Imposed	on Vendor:_ related - 1	C of C and (MTR ation re	quireme		
QA Requirement Comments: Class 1.	ts Imposed	on Vendor:_ related - 1	C of C and (MTR ation re	quireme		
QA Requirement Comments: Class 1.	ts Imposed	on Vendor:_ related - 1	C of C and (MTR ation re	quireme		
QA Requirement Comments: Class 1.	ts Imposed Non-safety	on Vendor:_ related - 1	C of C and (MTR ation re	quireme		
QA Requirement Comments: Class 1.	ts Imposed Non-safety	on Vendor:_ related - 1	C of C and (MTR ation re	quireme		A540 Gr.







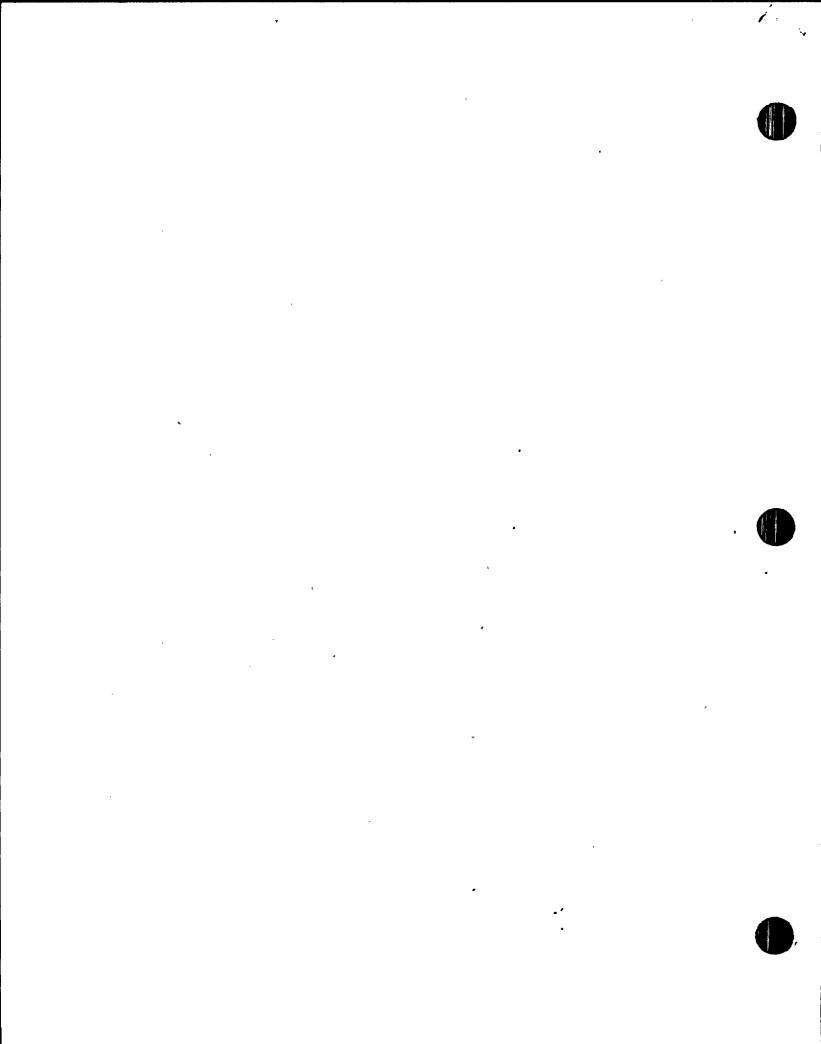
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Chemi	cal	Ana'	lysis

ID#	Hardness	UTS	0.2% YS*	С	, Mn	Si	P	s	Cr	Ni	Мо	Cu	Ti	Y
N1L	HRC 34.5	N/A	N/A	0.39	0.70	0.26	0.015	0.016	0.83	1.72	0.20	0.02	<0.01	<0.01

Note: UTS - Ultimate Heat Strength; YS - Yield Strength; C - Carbon; Mn - Manganese; Si - Silicon; P - Phosphorus; S - Sulfur; Cr - Chromium; Ni - Nickel; Mo - Molybdenum; Cu - Copper; Ti - Titanium; Y - Yanadium

*Proof Load



FASTENER TESTING DATA SHEET

Fastener Des	N2B cription: Nut 1½"
	of Sample Stock Location: G02J12C01
Material Spe	cification as Documented by Licensee Records: A563 Gr. A
Head Marking	(Specification and Manufacturer): N/A
Class/Procur	ement Level: QC2
General Plan	t Application (e.g., Pressure Boundary, Structural):
Stru	ctural .
Vendor:	•
QA Requireme	nts Imposed on Vendor: Unknown
,	***
Comments:	Non-safety related - meets specification of A563 Gr. A.
	•
	•

Signature____

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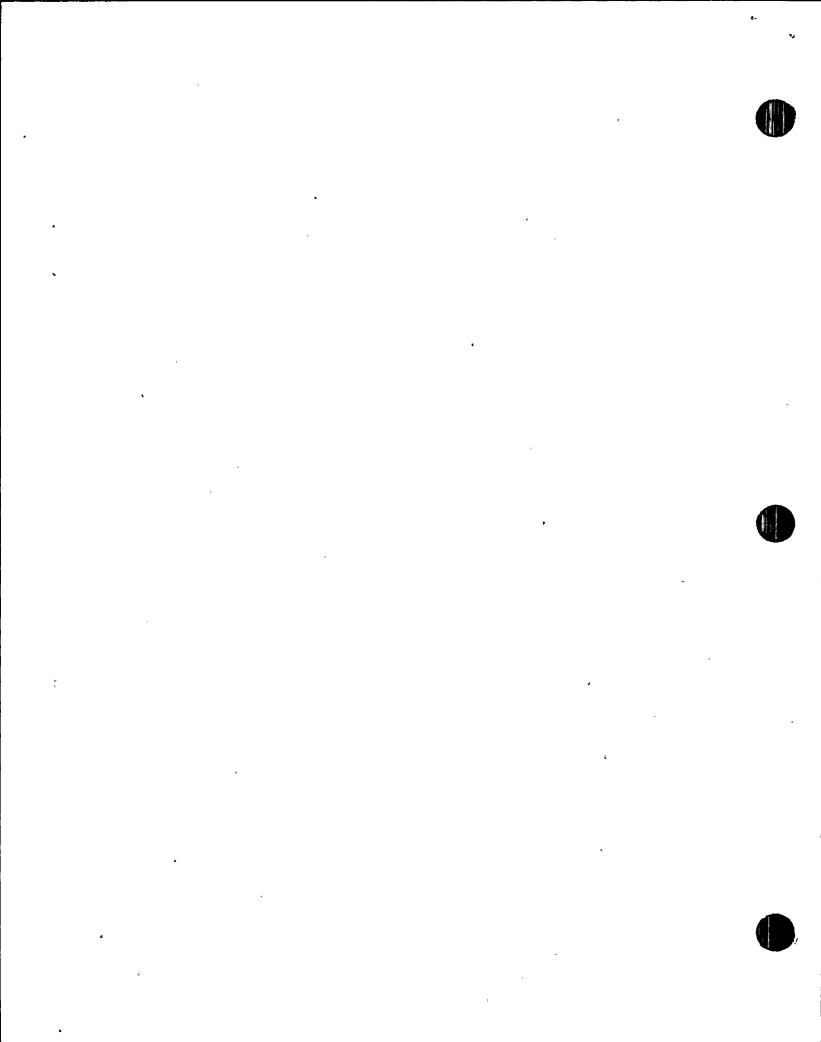


chanical Analysis	Chemical Analysis

ID#	Hardness	UTS	0.2% YS*	C	Mn	Si	P	S	Cr	Ni	Мо	Cu	Ti	Y
N2B	HRB 72.0	N/A	N/A	0.18	0.51	0.21	0.028	0.018	0.03	0.02	0.01	0.01	<0.01	<0.01

Note: UTS - Ultimate Heat Strength; YS - Yield Strength; C - Carbon; Mn - Manganese; Si - Silicon; P - Phosphorus; S - Sulfur; Cr - Chromium; Ni - Nickel; Mo - Molybdenum; Cu - Copper; Ti - Titanium; V - Yanadium

^{*}Proof Load



ATTACHMENT 5

NON-SAFETY RELATED

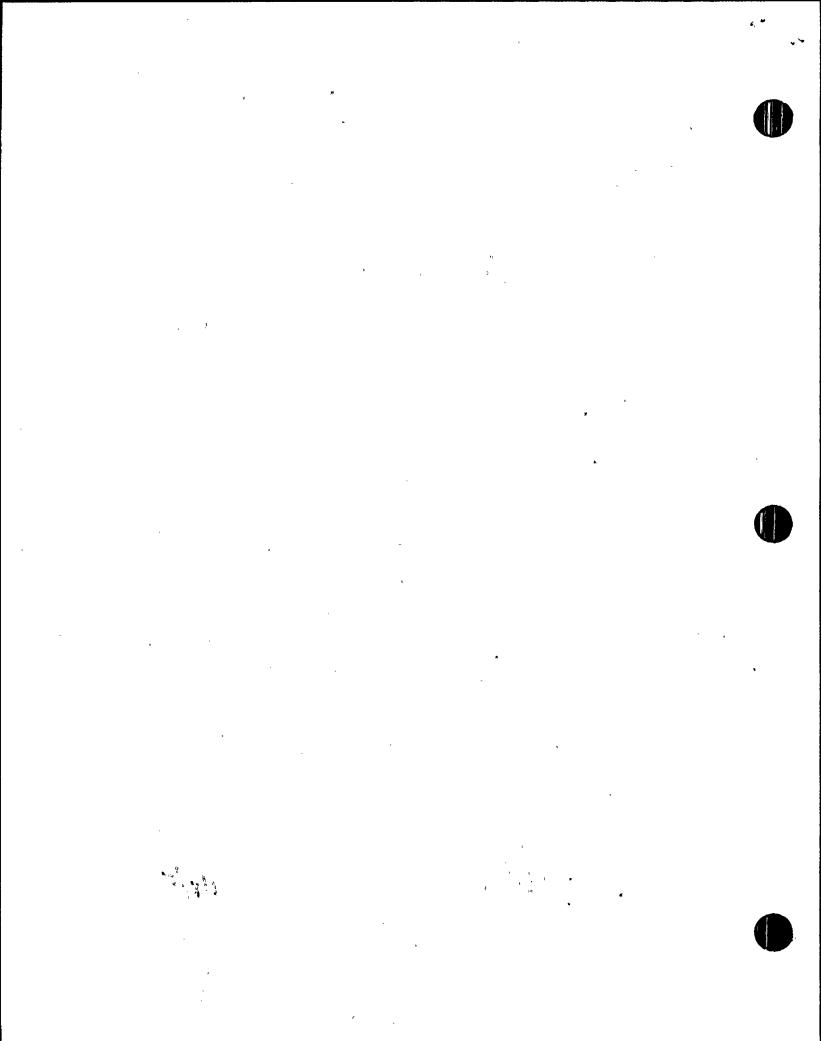
NRC SAMPLES

No.	Sample I.D.#	Lab I.D.#	Grade (per matcode)	Size (per matcode)
1	NRC Sample 1	NRC1	A307 Gr. B	3/4"x4"
2	WNP-2-25103995	NRC2	A449	5/8"x6"-11

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FASTENER TESTING DATA SHEET

Sample ID#: NRC Sample 1	
Lab ID#: NRC1	
Fastener Description: Bolt 3/4" x 4"	
Description of Sample Stock Location: 0209E47	
•	
Material Specification as Documented by Licensee Records: A307 Gr. E	3 on Bin
Head Marking (Specification and Manufacturer):	
Class/Procurement Level: N/A	
General Plant Application (e.g., Pressure Boundary, Structural):	h
Excessed	
Yendor: Unknown	
QA Requirements Imposed on Vendor: Unknown	
Comments: Additional NRC samples - meets specification of A307 Gr.	
· · · · · · · · · · · · · · · · · · ·	·
Licensee Representative: Signature Date 1-8	·
NRC Representative: Signature	/88









Mechanical Analysis Chemical Analysis

ID#	Hardness	UTS	0.2% YS*	С	Mn	،Si	P	S	Cr	- Ni	Мо	Cu	Ti	Υ
NRC1	HRB 96.5	67,000	60,100	0.09	0.50	<0.01	0.021	0.015	0.04	0.02	0.01	0.01	<0.01	<0.01

Note: UTS - Ultimate Heat Strength; YS - Yield Strength; C - Carbon; Mn - Manganese; Si - Silicon; P - Phosphorus; S - Sulfur; Cr - Chromium; Ni - Nickel; Mo - Molybdenum; Cu - Copper; Ti - Titanium; V - Yanadium

^{*}Proof Load

FASTENER TESTING DATA SHEET

Sample ID#: WNP-2-25103995 Lab ID#: B2E, NRC2 Fastener Description: Bolt 5/8" x 6" Description of Sample Stock Location: <u>G02K13I01</u> Material Specification as Documented by Licensee Records: A449 Galvanized Cadmium Head Marking (Specification and Manufacturer): Class/Procurement Level: G General Plant Application (e.g., Pressure Boundary, Structural): Structural Vendor: John Perrine Co., 820 South Adams, Seattle, WA 98108 QA Requirements Imposed on Vendor: N/A Comments: Additional NRC samples - meets specification of A449. Licensee Representative: Signature NRC Representative: Signature



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* 2F F DATA SUMMARY

Mechanical Analysis



Chemical Analysis



ID# H	lardness	UTS	0.2% YS*	С	Mn	Si	Р	s	Cr	Ni	Мо	Cu	Ti	γ
NRC2	HRC 30.0	N/A	N/A	0.38	0.71	0.22	0.017	0.014	0.10	0.07	0.01	0.11	0.03	0.01

Note: UTS - Ultimate Heat Strength; YS - Yield Strength; C - Carbon; Mn - Manganese; Si - Silicon; P - Phosphorus; S - Sulfur; Cr - Chromium; Ni - Nickel; Mo - Molybdenum; Cu - Copper; Ti - Titanium; Y - Yanadium

*Proof Load

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