	CORECEIVED	
Form 3160-3 (June 2015)		FORM APPROVED OMB No. 1004-0137 Expires: January 31, 2018
UNITED S DEPARTMENT OF		5. Lease Serial No.
BUREAU OF LAND		
APPLICATION FOR PERMI	TTO DRILL OR REENTER	6. If Indian, Allotee or Tribe Name
a. Type of work: I DRILL		7. If Unit or CA Agreement. Name and No.
b. Type of Well:		
c. Type of Completion: Hydraulic Fracturing	Single Zone Multiple Zone	8. Lease Name and Well No. FEZ FEDERAL COM
		602H
Name of Operator COG OPERATING LLC 229137	N	9 APJ-Well No. 30-025-49275
a. Address 600 West Illinois Ave Midland TX 79701	3b. Phone No. (include area code) (432)683-7443	10 Field and Pool, or Exploratory (9809) WILDCAT / BONE SPRING
. Location of Well (Report location clearly and in acco		11. Sec. Y. R. M. or Blk. and Survey or Area
At surface SESW / 280 FSL / 1690 FWL / LAT		SEC 977255 / R35E / NMP
At proposed prod. zone NENW / 200 FNL / 1450 4. Distance in miles and direction from nearest town or	<u>{v (</u>	12. County or Parish 13. State
9 miles		LEA NM
5. Distance from proposed* 200 feet location to nearest property or lease line, ft. (Also to nearest drig, unit line, if any)	16. No of acres in lease 17. Spa 640 320,85	contraction to this well
8. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. 604 feet		M/BIA Bond No. in file NMB000215
1. Elevations (Show whether DF, KDB, RT, GL, etc.) 3243 feet	22 Approximate date work will start* 06/01/2018	23. Estimated duration 30 days
((24. Attachments	
the following, completed in accordance with the require as applicable)	ements of Onshore Oil and Gas Order No. 1, and the	o Hydraulic Fracturing rule per 43 CFR 3162.3-3
. Well plat certified by a registered surveyor. . A Drilling Plan.	Item 20 above).	ions unless covered by an existing bond on file (see
A Surface Use Plan (if the location is on National For SUPO must be filed with the appropriate Forest Servi	est.System Lands, the 5. Operator certification. 6. Such other site specific inf BLM.	formation and/or plans as may be requested by the
5. Signature (Electronic Submission)	Name (Printed/Typed) Mayte Reyes / Ph: (575)748-694	Date 03/16/2018
itle (())		
Approved by (Signature) (Electronic/Submission)	Name (Printed/Typed) Cody Layton / Ph: (575)234-595	Date 9 09/28/2018
Title Assistant Field Manager Lands & Minerals	Office CARLSBAD	
upplication approval does not warrant or certify that the pplicant to conduct operations thereon. Conditions of approval, if any are attached.	e applicant holds legal or equitable title to those righ	ts in the subject lease which would entitle the
itle 18 U.S.C. Section 1001 and Title 43 U.S.C. Section f the United States any false, fictitious or fraudulent sta		
ECP Der 10/11/18		1 Ktr/A
	PROVED WITH CONDITIONS	REQUIRES NY
Continued on page 2)	kua	*(Instructions on page 2)

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APPROVAL Date: 09/28/2018

INSTRUCTIONS

GENERAL: This form is designed for submitting proposals to perform certain well operations, as indicated on Federal and Indian lands and leases for action by appropriate Federal agencies, pursuant to applicable Federal laws and regulations. Any necessary special instructions concerning the use of this form and the number of copies to be submitted, particularly with regard to local, area, or regional procedures and practices, either are shown below or will be issued by, or may be obtained from local Federal offices.

ITEM I: If the proposal is to redrill to the same reservoir at a different subsurface location or to a new reservoir, use this form with appropriate notations. Consult applicable Federal regulations concerning subsequent work proposals or reports on the well.

ITEM 4: Locations on Federal or Indian land should be described in accordance with Federal requirements. Consult local Federal offices for specific instructions.

ITEM 14: Needed only when location of well cannot readily be found by road from the land or lease description. A plat, or plats, separate or on the reverse side, showing the roads to, and the surveyed location of, the wen, and any other required information, should be furnished when required by Federal agency offices.

ITEMS 15 AND 18: If well is to be, or has been directionany drilled, give distances for subsurface location of hole in any present or objective productive zone.

ITEM 22: Consult applicable Federal regulations, or appropriate officials, concerning approval of the proposal before operations are started.

ITEM 24: If the proposal will involve hydraulic fracturing operations, you must comply with 43 CFR 3162.3-3, including providing information about the protection of usable water. Operators should provide the best available information about all formations containing water and their depths. This information could include data and interpretation of resistivity logs run on nearby wells. Information may also be obtained from state or tribal regulatory agencies and from local BLM offices.



The Privacy Act of 1974 and regulation in 43 CFR 2.48(d) provide that you be furnished the following information in connection with information required by this application.

AUTHORITY: 30 U.S.C. 181 et seq., 25 U(\$:6, 396; 43 CFR 3160

PRINCIPAL PURPOSES: The information will be used to: (1) process and evaluate your application for a permit to drill a new oil, gas, or service wen or to reenter a plugged and abandoned well; and (2) document, for administrative use, information for the management, disposal and use of National Resource Lands and resources including (a) analyzing your proposal to discover and extract the Federal or Indian resources encountered; (b) reviewing procedures and equipment and the projected impact on the land involved; and (c) evaluating the effects of the proposed operation on the surface and subsurface water and other environmental impacts.

ROUTINE USE: Information from the record and/or the record win be transferred to appropriate Federal, State, and local or foreign agencies, when relevant to civil, criminal or regulatory investigations or prosecution, in connection with congressional inquiries and for regulatory responsibilities.

EFFECT OF NOT PROVIDING INFORMATION: Filing of this application and disclosure of the information is mandatory only if you elect to initiate a drilling or reentry operation on an oil and gas lease.

The Paperwork Reduction Act of 1995 requires us to inform you that:

The BLM conects this information to anow evaluation of the technical, safety, and environmental factors involved with drilling for oil and/or gas on Federal and Indian oil and gas leases. This information will be used to analyze and approve applications. Response to this request is mandatory only if the operator elects to initiate drilling or reentry operations on an oil and gas lease. The BLM would like you to know that you do not have to respond to this or any other Federal agency-sponsored information collection unless it displays a currently valid OMB control number.

BURDEN HOURS STATEMENT: Public reporting burden for this form is estimated to average 8 hours per response, including the time for reviewing instructions, gathering and maintaining data, and completing and reviewing the form. Direct comments regarding the burden estimate or any other aspect of this form to U.S. Department of the Interior, Bureau of Land Management (1004-0137), Bureau Information Conection Clearance Officer (WO-630), 1849 C Street, N.W., Mail Stop 401 LS, Washington, D.C. 20240.

Additional Operator Remarks

Location of Well

1. SHL: SESW / 280 FSL / 1690 FWL / TWSP: 25S / RANGE: 35E / SECTION: 9 / LAT: 32.138406 / LONG: -103.375563 (TVD: 0 feet, MD: 0 feet) PPP: SENW / 2640 FNL / 1450 FWL / TWSP: 25S / RANGE: 35E / SECTION: 9 / LAT: 32.144892 / LONG: -103.376328. (TVD: 12277 feet, MD: 14350 feet) PPP: SESW / 330 FSL / 1450 FWL / TWSP: 25S / RANGE: 35E / SECTION: 9 / LAT: 32.138544 / LONG: -103.376337 (TVD: 12280 feet; MD: 12375 feet) BHL: NENW / 200 FNL / 1450 FWL / TWSP: 25S / RANGE: 35E / SECTION: 4 / LAT: 32.166179 / LONG: -103.376294 (TVD: 12282 feet, MD: 22148 feet)

BLM Point of Contact

Name: Tenille Ortiz Title: Legal Instruments Examiner Phone: 5752342224 Email: tortiz@blm.gov

Review and Appeal Rights

A person contesting a decision shall request a State Director review. This request must be filed within 20 working days of receipt of the Notice with the appropriate State Director (see 43 CFR 3165.3). The State Director review decision may be appealed to the Interior Board of Land Appeals, 801 North Quincy Street, Suite 300, Arlington, VA 22203 (see 43 CFR 3165.4). Contact the above listed Bureau of Land Management office for further information.



U.S. Department of the Interior BUREAU OF LAND MANAGEMENT



Operator Certification

I hereby certify that I, or someone under my direct supervision, have inspected the drill site and access route proposed herein; that I am familiar with the conditions which currently exist; that I have full knowledge of state and Federal laws applicable to this operation; that the statements made in this APD package are, to the best of my knowledge, true and correct; and that the work associated with the operations proposed herein will be performed in conformity with this APD package and the terms and conditions under which it is approved. I also certify that I, or the company I represent, am responsible for the operations conducted under this application. These statements are subject to the provisions of 18 U.S.C. 1001 for the filing of false statements.

NAME: Mayte Reyes		Signed on: 03/15/2018
Title: Regulatory Analyst		
Street Address: 2208 W	Main Street	
City: Artesia	State: NM	Zip: 88210
Phone: (575)748-6945		
Email address: Mreyes1	@concho.com	
Field Represe	ntative	
Representative Name	Rand French	
Street Address: 2208	West Main Street	
City: Artesia	State: NM	Zip: 88210
Phone: (575)748-6940		
Email address: rfrench	n@concho.com	



U.S. Department of the Interior BUREAU OF LAND MANAGEMENT

APD ID: 10400028416

Operator Name: COG OPERATING LLC

Well Name: FEZ FEDERAL COM

Well Type: OIL WELL

Submission Date: 03/16/2018

Well Number: 602H Well Work Type: Drill

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Show Final Text

Section 1 - General		
APD ID: 10400028416	Tie to previous NOS?	Submission Date: 03/16/2018
BLM Office: CARLSBAD	User: Mayte Reyes	Title: Regulatory Analyst
Federal/Indian APD: FED	Is the first lease penetr	ated for production Federal or Indian? FED
Lease number: NMNM125658	Lease Acres: 640	
Surface access agreement in place?	Allotted?	Reservation:
Agreement in place? NO	Federal or Indian agree	ment:
Agreement number:		
Agreement name:		
Keep application confidential? YES		
Permitting Agent? NO	APD Operator: COG OF	PERATING LLC
Operator letter of designation:		
Operator Info		
Operator Organization Name: COG OP	ERATING LLC	
Operator Address: 600 West Illinois Ave	e	Zip: 79701
Operator PO Box:		. .
Operator City: Midland Sta	ate: TX	
Operator Phone: (432)683-7443		
Operator Internet Address: RODOM@	CONCHO.COM	
Section 2 - Well Infor	mation	
Well in Master Development Plan? NO	Mater Develop	ment Plan name:
Well in Master SUPO? NO	Master SUPO	name:
Well in Master Drilling Plan? NO	Master Drilling	g Plan name:
Well Name: FEZ FEDERAL COM	Well Number:	602H Well API Number:
Field/Pool or Exploratory? Field and Po	ol Field Name: W	/ILDCAT Pool Name: BONE SPRING

Is the proposed well in an area containing other mineral resources? USEABLE WATER, OIL

Application Data Report 09/28/2018

<u>Se</u>

- martin

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Well Number: 602H

Desc	ribe o	ther I	miner	als:														
Is the	e prop	osed	well i	n a He	elium	prod	uctio	n area?	N Use E	xisting W	ell Pac	!? N O	Ne	w s	surface d	listurk	bance	?
Туре	of We	ell Pa	d: MU	LTIPL	E WE	LL			•	ble Well Pa		ne: FE		Number: 601H, 602H AND 701H				
Well	Class	: HOF	RIZON	TAL						RAL COM per of Leg			. 70	1H				
Well	Work	Туре	: Drill															
Well	Туре:	OILV	VELL										· .					
Desc	ribe V	Vell T	ype:															
Well	sub-T	ype:	EXPL	ORAT	ORY	(WILC	CAT)				• •.							
Desc	ribe s	ub-ty	pe:							•								
Dista	ince to	o tow	n: 9 M	liles			Dist	ance to	nearest v	vell: 604 F	T .	Dist	ance t	o le	ase line:	200 F	T	
Rese	rvoir	well s	pacin	g ass	igned	l acre	s Mea	surem	ent: 320.8	5 Acres								
Well	plat:	СС)G_Fe	z_602	2H_C	102_2	01803	3150944	51.pdf									
Well	work	start	Date:	06/01/	/2018				Durat	ion: 30 DA	AYS							
	0		0 V				.											
	Sec	tion	3 - V	Vell	LOCa	ation	lar	DIE										
Surv	ey Tyj	be: RE	ECTA	NGUL	AR													
Desc	ribe S	urvey	/ Туре):														
Datu	m:NA	D83			- -	:			Vertic	al Datum:	NAVE	88						
Surv	ey nui	nber:																
	NS-Foot	NS Indicator	EW-Foot	EW Indicator	Twsp	Range	Section	Aliquot/Lot/Tract	Latitude	Longitude	County	State	Meridian	Lease Type	Lease Number	Elevation	QW	TVD
SHL Leg #1	280	FSL	169 0 ^{: :}	FWL	25S	35E	9	Aliquot SESW	32.13840 6	- 103.3755 63	LEA	NEW MEXI CO		F	NMNM 125658		0	0
KOP Leg #1	280	FSL	169 0	FWL	25S	35E	9	Aliquot SESW	32.13840 6	- 103.3755 63	LEA	NEW MEXI CO	NEW MEXI CO	F	NMNM 125658		0	0
PPP Leg #1	330	FSL	145 0	FWL	25S	35E	9	Aliquot SESW	32.13854 4	- 103.3763 37	LEA	NEW MEXI CO	NEW MEXI CO	F	NMNM 125658	- 898 7	123 75	122 30

Operator Name: COG OPERATING LLC

Well Name: FEZ FEDERAL COM

Well Number: 602H

	NS-Foot	NS Indicator	EW-Foot	EW Indicator	Twsp	Range	Section	Aliquot/Lot/Tract	Latitude	Longitude	County	State	Meridian	Lease Type	Lease Number	Elevation	DW	DVT
PPP Leg #1	264 0	FNL	145 0	FWL	25S	35E	9	Aliquot SENW	32.14489 2	- 103.3763 28	LEA		NEW MEXI CO	F	FEE	- 903 4	143 50	122 77
EXIT Leg #1	330	FNL	145 0	FWL	25S	35E	4	Aliquot NENW	32.16582 1	- 103.3762 94	LEA		NEW MEXI CO	F	NMNM 125657	- 901 1	219 50	122 54
BHL Leg #1	200	FNL	145 0	FWL	25S	35E	4	Aliquot NENW	32.16617 9	- 103.3762 94	LEA		NEW MEXI CO	F	NMNM 125657	- 903 9	221 48	122 82

Operator Name: COG OPERATING LLC

Well Name: FEZ FEDERAL COM

Well Number: 602H

Pressure Rating (PSI): 10M

Rating Depth: 12282

Equipment: Annular, Blind Ram, Pipe Ram. Other accessories to the BOP equipment will include a Kelly cock and floor safety valve (inside BOP) and choke lines and choke manifold **Requesting Variance?** YES

Variance request: A variance is requested for the use of a flexible choke line from the BOP to the choke manifold. See attached for specs and hydrostatic test chart.

Testing Procedure: BOP/BOPE will be tested by an independent service company to 250 psi low and the high pressure indicated above per Onshore Order 2 requirements. The System may be upgraded to a higher pressure but still tested to the working pressure listed in the table above. If the system is upgraded all the components installed will be functional and tested. Pipe rams will be operationally checked each 24 hour period. Blind rams will be operationally checked on each trip out of the hole. These checks will be noted on the daily tour sheets.

Choke Diagram Attachment:

COG_Fez_602H_10M_Choke_20180315095419.pdf

BOP Diagram Attachment:

COG_Fez_602H_10M_BOP_20180315095425.pdf

COG_Fez_602H_Flex_Hose_20180810093447.pdf

Pressure Rating (PSI): 5M

Rating Depth: 11515

Equipment: Annular. Accessories to the BOP equipment will include a Kelly cock and floor safety valve (inside BOP) and choke lines and choke manifold.

Requesting Variance? YES

Variance request: A variance is requested for the use of a flexible choke line from the BOP to the choke manifold. See attached for specs and hydrostatic test chart.

Testing Procedure: BOP/BOPE will be tested by an independent service company to 250 psi low and the high pressure indicated above per Onshore Order 2 requirements. The System may be upgraded to a higher pressure but still tested to the working pressure listed in the table above. If the system is upgraded all the components installed will be functional and tested. Pipe rams will be operationally checked each 24 hour period. Blind rams will be operationally checked on each trip out of the hole. These checks will be noted on the daily tour sheets.

Choke Diagram Attachment:

COG_Fez_602H_5M_Choke_20180315095508.pdf

BOP Diagram Attachment:

COG_Fez_602H_5M_BOP_20180315095514.pdf

COG_Fez_602H_Flex_Hose_20180810093431.pdf

Well Number: 602H

Section 3 - Casing

Casing ID	String Type	Hole Size	Csg Size	Condition	Standard	Tapered String	Top Set MD	Bottom Set MD	Top Set TVD	Bottom Set TVD	Top Set MSL	Bottom Set MSL	Calculated casing length MD	Grade	Weight	Joint Type	Collapse SF	Burst SF	Joint SF Type	Joint SF	Body SF Type	Body SF
1	SURFACE	17.5	13.375	NEW	API	N	0	1065	0	1065	-9411	- 10581	1065	J-55	54.5	STC	2.37	7.09	DRY	8.86	DRY	8.86
	INTERMED IATE	12.2 5	9.625	NEW	API	N	0	11515	0	11515		- 21491	11515	HCL -80		OTHER - BTC	1.62	1.08	DRY	2.07	DRY	2.07
3	PRODUCTI ON	8.75	5.5	NEW	API	N	0	22148	0	22148		- 29318	22148	P- 110		OTHER - BTC	1.82	2.15	DRY	2.56	DRY	2.56

Casing Attachments

Casing ID: 1 String Type: SURFACE

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

COG_Fez_602H_Casing_Prog_20180315095552.pdf

Well Number: 602H

Casing Attachments

Casing ID: 2

String Type: INTERMEDIATE

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

COG_Fez_602H_Casing_Prog_20180315095615.pdf

Casing ID: 3 String Type: PRODUCTION

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

COG_Fez_602H_Casing_Prog_20180315095647.pdf

Section	4 - Ce	emen	t								
String Type	Lead/Tail	Stage Tool Depth	Top MD	Bottom MD	Quantity(sx)	Yield	Density	Cu Ft	Excess%	Cement type	Additives
SURFACE	Lead		0	1065	450	1.75	13.5	787	50	Class C	4% Gel
SURFACE	Tail		0	1065	250	1.34	14.8	335	50	Class C	2% CaCl2
INTERMEDIATE	Lead		0	1151 5	930	2.8	11	2604	50	Lead: NEOCEM	As needed
INTERMEDIATE	Tail		0	1151 5	300	1.1	16.4	330	50	Class H	As needed
PRODUCTION	Lead		0	2214 8	400	2	12.7	800	35	Lead: 35:65:6 H BLEND	As needed

Operator Name: COG OPERATING LLC Well Name: FEZ FEDERAL COM

Well Number: 602H

String Type	Lead/Tail	Stage Tool Depth	Top MD	Bottom MD	Quantity(sx)	Yield	Density	Cu Ft	Excess%	Cement type	Additives
PRODUCTION	Tail		0	2214 8	2930	1.24	14.4	3633	35	Tail: 50:50:2 Class H Blend	As needed

Section 5 - Circulating Medium

Mud System Type: Closed

Will an air or gas system be Used? NO

Description of the equipment for the circulating system in accordance with Onshore Order #2:

Diagram of the equipment for the circulating system in accordance with Onshore Order #2:

Describe what will be on location to control well or mitigate other conditions: Sufficient mud materials to maintain mud properties and meet minimum lost circulation and weight increase requirements will be kept on location at all times.

Describe the mud monitoring system utilized: PVT/Pason/Visual Monitoring

	Circ	ulating Mediu	ım Ta	able		-					
Top Depth	Bottom Depth	Mud Type	Min Weight (Ibs/gal)	Max Weight (Ibs/gal)	Density (lbs/cu ft)	Gel Strength (lbs/100 sqft)	H	Viscosity (CP)	Salinity (ppm)	Filtration (cc)	Additional Characteristics
1151 5	2214 8	OIL-BASED MUD	10.5	12.5							ОВМ
0	1065	OTHER : FW Gel	8.4	8.6			, ,				FW Gel
1065	1151 5	OTHER : Diesel Brine Emulsion	8.6	8.9							Diesel Brine Emulsion

Operator Name: COG OPERATING LLC

Well Name: FEZ FEDERAL COM

Well Number: 602H

Section 6 - Test, Logging, Coring

List of production tests including testing procedures, equipment and safety measures:

None planned

List of open and cased hole logs run in the well:

CNL,GR

Coring operation description for the well:

None planned

Section 7 - Pressure

Anticipated Bottom Hole Pressure: 7985

Anticipated Surface Pressure: 5282.96

Anticipated Bottom Hole Temperature(F): 180

Anticipated abnormal pressures, temperatures, or potential geologic hazards? NO

Describe:

Contingency Plans geoharzards description:

Contingency Plans geohazards attachment:

Hydrogen Sulfide drilling operations plan required? YES

Hydrogen sulfide drilling operations plan:

COG_Fez_602H_H2S_Schem_20180315095855.pdf COG_Fez_602H_H2S_SUP_20180315095901.pdf

Section 8 - Other Information

Proposed horizontal/directional/multi-lateral plan submission:

COG Fez_602H_AC_20180315095948.pdf

COG_Fez_602H_Direct_Plan_20180315095955.pdf

Other proposed operations facets description:

Other proposed operations facets attachment:

COG_Fez_602H_GCP_20180810093508.pdf COG_Fez_602H_Drilling_Prog_20180817084705.pdf

Other Variance attachment:

COG_5M_Annular_Variance_WCP_20180314103010.pdf

5M Choke Manifold Equipment (WITH MGS + CLOSED LOOP)



10M BOP Stack



,





INDEPENDENCE CONTRACT DRILLING 11601 N. GALAYDA STREET HOUSTON, TX. 77086

PURCHASE ORDER NO.: PO00116446

DATE: February 23, 2018

COPPER STATE RUBBER/SPECIALTIES COMPANY FILE: CSR / SPECO- 81069

TAB 1

I. CERTIFICATE OF REGISTRATION ISO 9001:2015 APIQR REGISTRATION NO.: 3042 II. API CERTIFICATE OF ACCREDITATION FOR Q1

AND SPEC. 16C CERTIFICATE NO.:16C-0383

COPPER STATE RUBBER CHOKE / KILL HOSE, API SPEC. 16C MONOGRAMMED, FSL 3, TEMP RANGE B/P, 10,000 PSI WP, 15,000 PSI TEST, FIRE RESISTANT, WITH BUTTWELD 4-1/16'' 10K API FLANGE WITH S.S. LINED BX-155 RING GROOVE EACH END. H2S SUITED. 1 EA. 3'' ID X 75 FT. S/N- 33851

TAB 2

- I. CSR CERTIFICATE OF COMPLIANCE
- II. COMPLETE ASSEMBLIES VISUAL INSPECTION/HYDROSTATIC TEST REPORTS
- III. PRESSURE GAUGE CALIBRATION CERTIFICATE, S/N.: 111291-2
- IV. CHART RECORDER CALIBRATION CERTIFICATE, S/N.: 07459

- I. METAL COMPONENT REPORTS
 - A. INSERTS:
 - 1. BRENDELL 14C1, ENCORE METALS HT-418595
 - B. 4-1/16" 10K API MAWP 6A FLANGE
 - 1. MACHINE SPECIALTY & MFG. HT-V4760

TAB 4

I. WELDING PROCEDURES AND QUALIFICATION RECORDS A. COPPER STATE RUBBER WPS/PQR NOS.: 911171-1 AND 911171-2, REV. 5 FOR INSERTS TO TERMINATING CONNECTOR WELDMENTS

TAB 5

- I. NDE REPORTS FOR END FITTINGS TO INSERT WELDMENTS A. STRESS RELIEVING
 - 1. **REPUBLIC HEAT TREAT** CERT. ID NO.: 38120-1 P.O. NO.: 7494
 - B. RADIOGRAPHIC INSPECTION
 - 1. RADIOGRAPHIC SPECIALISTS

P.O. NO.: 7815

TAB 6

- I. FIELD TEST PROCEDURES FOR USED COPPER STATE RUBBER ROTARY AND VIBRATOR HOSE ASSEMBLIES
- II. COPPER STATE RUBBER 12 MONTH WARRANTY TERMS AND CONDITION



Certificate of Registration

APIQR' REGISTRATION NUMBER

3042 *This certifies that the quality management system of*

COPPER STATE RUBBER, INC. 750 S. 59th Avenue Phoenix, AZ

has been assessed by the American Petroleum Institute Quality Registrar (APIQR®) and found it to be in conformance with the following standard:

ISO 9001:2015

The scope of this registration and the approved quality management system applies to the

Design and Manufacture of Oilfield, Marine and Other Industrial Hoses

APIQR[®] approves the organization's justification for excluding: No Exclusions Identified as Applicable

Effective Date: Expiration Date: Registered Since: MARCH 28, 2017 APRIL 21, 2019 APRIL 21, 2016

Vice President, API Global Industry Services





This certificate is valid for the period specified herein. The registered organization must continuelly neet all requirements of APIQR's Registration Program and the registration deregistration Agreement. Registration is maintained and regularly monitored through annual full system and/s. Further clarifications regarding the scope of this certificate and the applicability of ISO 9001 standard requirements may be obtained by consulting the registered organization. This certificate has been issued from APIQR offices located at 1220 (Street, N.W., Washington, D.C. 2005-4070, U.S.A., it is the property of APIQR, and must be returned mon register. To verify the authenticity of this certificate, on to www.ani.org/compositelist.





Certificate of Authority to use the Official API Monogram License Number: 16C-0383 ORIGINAL

The American Petroleum Institute hereby grants to

COPPER STATE RUBBER, INC. 750 S. 59th Avenue Phoenix, AZ

the right to use the Official API Monogram[®] on manufactured products under the conditions in the official publications of the American Petroleum Institute entitled API Spec Q1[®] and **API-16C** and in accordance with the provisions of the License Agreement.

In all cases where the Official API Monogram is applied, the API Monogram shall be used in conjunction with this certificate number. **16C-0383**

The American Petroleum Institute reserves the right to revoke this authorization to use the Official API Monogram for any reason satisfactory to the Board of Directors of the American Petroleum Institute.

The scope of this license includes the following: Flexible Choke and Kill Lines atFSL 0, FSL 1, FSL 2, FSL 3

QMS Exclusions: No Exclusions Identified as Applicable

Effective Date: MARCH 28, 2017 Expiration Date: APRIL 21, 2019

To verify the authenticity of this license, go to www.api.org/compositelist.

14141 S. Wayside Drive Houston, Texas 77048

Phone 713-644-1491 Fax 713-644-9830 www.copperstaterubber.com sales@copperstaterubber.com

February 23, 2018



Independence Contracting Drilling 11601 N. Galayda St. Houston, Texas 77086

Subject:	Purchase Order No.: PO00116446
	Date: February 23, 2018
	Specialties Company File No.: CSR / SPECO-81069

Equipment: Copper State Rubber Choke/Kill Hose Assembly, 10KSI MAWP X 15KSI T/P, API 16C FSL3, Fire Resistant Cover, Complete 4-1/16" 10KSI MAWP Flange With BX155 SS Lined Ring Groove Each End. H2S Suited. 1EA: 3" ID X 75Ft. S/N-33851

CERTIFICATE OF COMPLIANCE

This is to certify the above referenced equipment meets or exceeds the following requirements and were manufactured from same material specification and manufacturing methods as prototype assemblies for referenced specifications.

- I. COMPLETE HOSE ASSEMBLY
 - A. API Certificate of Accreditation for Spec: Q1 (Quality Programs) and Spec.: 16C
 - 1. Copper State Rubber, Inc. Certificate No.: 16C-0383
 - B. CSR Specification No.: 090-1915C

II. PHYSICAL/CHEMICAL PROPERTIES OF METAL COMPONENTS

- A. API Spec. 6A, latest edition
- B. API Spec. 16A, latest edition
- C. NACE Standard MR0175, latest edition

III. WELDMENTS/NDE REQUIREMENTS

- A. Section IX, ASME Boiler & Pressure Code, 1986 Ed., 1987 Add.
- B. CSR/Specialties Company WPS/PQR Nos.: 911171-1, and 911171-2, Rev. 05 dated June 2005

Marine, Industrial, and Oilfield Hose Made in the U.S.A.

III. WELDMENTS/NDE REQUIREMENTS (continued) C. API Spec. 6A, latest edition

C. D. API Spec. 16A, latest edition

Sincerely,

Joe Leeper,

Technical Department



Visual Inspection / Hydrostatic Test Report

Manufacturer	Copper State Rubber Inc.	
Hose Type	Choke and Kill	
Pressure Rating	10,000 PSI MAWP X 15,000 PSI T/P	
Spec Number	090-1915C-48	
FSL Rating	FSL 3	

Serial Number	33851	
Size ID	3"	
Length	75'	
Date	December 9, 2017	
Shop Order Number	31162	

Connections Description: 4 1/16" 10K API FLANGE WITH SS INLAID BX-155 RING GROOVE EACH END

Traceability of Terminating Connectors

	Insert	Male	Nut	Female	Flanges	Hubs	Other
Connector 1	14C1				V4760		CSR-H1263
Connector 2	14C1				V4760		CSR-H1265

Comments

Calibrated Devices

Pressure Recorder	07459	Calibration Date	1/23/2017
Pressure Gauge	111291-2	Calibration Date	1/23/2017

*This report signifies that the product has been visually inspected for defects in the interior tube, recess, gasket, cover and branding and all have been found to be conforming.

Comments

Hydrostatic Testing Requirements

60 Min @ 15,000 psi (-0/+500 psi)

75' OAL

Length after test

til Spider

Witness By: Supervisor

INDEPENDENCE CONTRACT DRILLING P.O. NO.: PO00116446 DATE: FEBRUARY 23, 2018 FILE NO.: CSR / SPECO-81069

QA-28 REV-0 10/15









1401

OUCTOMED ODDED NUMPER

encoremetals

CERTIFICATE OF TEST

Page 01 of 02

Certification Date 14-JUL-2014

1591 CUSTOMER		BER	ENCORE MET 789 NORTH NORTH SALT	400 WEST	84054		e Number 0494			
SOLD TO:	BRENDEL	L MANUFACTUR	ING INCSHIP	TO: BI	RENDELL MA	NUFACTURIN	G INC.			
	00 WEST LAKE UT 8	4054								
Descript 6-1/2 RD HEAT: 4	ion: E4 X 20' R, 18595	4130 HR NORM /L	Q&T BAR AP ITEM: 505	PI 6A PSL3 1 824	NACE MR01 Line Total		<u></u> ,,,,,,,_,_,			
Specific NACE MR- AMS H 68 ASTM A37	ations: 01-75 75 A 0 11	AP AS AS	I 6A PSL 3 FM A29 12 FM A304 04		EN 102 ASTM A	04 3.1 322 07				
			CHEMICAL	ANALYSIS						
C 0.313	MIN 0,56	SI 0.25	P 0.014	S 0.003	CR 1.0600	NI 0.17	MO 0.23			
		SN 0.014	TI 0.0027	V 0.027	NB 0.003	AS 0.006	CA 0.0015			
SB 0.001	CO 0.011	PB 0.002								
RCPT: R	120906			COUNTRY (F ORTGIN	• TTAT.Y				
	MECHANICAL PROPERTIES									
		YLD STR PSI 85862.0								
DESCRIPT: SURFACE	ION	YLD STR	ULT TEN	*ELONG	%RED IN AREA	HARDNESS BHN 229				

The above data were transcribed from the manufacturer's Certificate of Test after verification for completeness and specification requirements of the information on the certificate. All test results remain on file subject to examination. Material did not come in contact with mercury while in our possession.

- 1

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We hereby certify that the material covered by this report will meet the applicable requirements described herein, including any specification forming a part of the description.

The willful recording of false, fictitious, or fraudulent statements in connection with test results may be punisbable as a felony under federal statutes.

INSERT MATERIAL INDEPENDENCE CONTRACT DRILLING P.O. NO.: PO00116446 DATE: FEBRUARY 23, 2018 FILE NO.: CSR / SPECO-81069



CERTIFICATE OF TEST

Page 02 of 02

Certification Date 14-JUL-2014

CUSTOMER 15910 CUSTOMER SERIA	6		7	89 NORT		US WEST E UT 84		Inv	oice Number S160494
SOLD TO:						BREND 580 N NORTH			RING INC. T 84054
Descript: 6-1/2 RD HEAT: 4: GRAIN S	X 20' 18595 IZE :7	R/L		ITEM: 5	505824	-	Total:	19.5	FT
CHARPY MATERIAI NO WELD THERMAL NORMALIZ QUENCHEI TEMPEREI	-75 F IS FF REPAIF TREATM SED 165 1616 1300	LONG EE FROM PERFORM	33.0 MERCURY ED ON M X 353' TER X 39 R X 390	36.0 CONTAM ATERIAL	36.0 11NATIO	35.0	ہ SHEAR	LAT EXPN	DESCRIPTION 10mm x 10mm

The above data were transcribed from the manufacturer's Certificate of Test after verification for completeness and specification requirements of the information on the certificate. All test results remain on file subject to examination. Material did not come in contact with mercury while in our possession. DIANA JOHNSON

ravaj

The willful recording of false, fictitious, or fraudulent statements in connection with test results may be punishable as a felony under federal statutes.

described herein, including any specification forming a part of the description.

We hereby certify that the material covered by this report will meet the applicable requirements

TECHNICAL MANAGER

	MACHINE SPECIALTY & MFG., INC. 215 ROUSSEAU ROAD YOUNGSVILLE, LA 70592 Phone: 337-837-0020 Fax: 337-837-0062									I	Mater	ial Te	st Report			
SOLD TO: SPECIALTIES CO./COPPER STATE RUBBER INC. 14141 S WAYSIDE DRIVE HOUSTON, TX 77048						SHI	P TO:	RUBB 14141	IALTIES CO./CO ER INC. S WAYSIDE DI STON, TX 77048	RIVE	TE					
DATE		SALES	ORDER	#	CUST P	.0.#			TAG	IUMBER				<u>}</u>		
11/17/201	16	0260385	5		110816	NL.					_					
ITEM # Q	TY	ITEM D	ESCRIP	TION						HE	AT CODI	-	HEAT NU	MBER	STARTIN	NG MATERIAL
2	8				4.5 OD TA \Y SO# 13('HRU -C	8	CHEM		760 IALYSIS		G1207		API 6A 7	
C	Si	Mn	S	Р	Cr	Cu	AI	N	Mo	V						
.32	.22	.51	.011	.013	.98			.06		.00	PERTIES	à				
Yield PSI	Te	nsile PSI	Elong		REDUCTION		dness inell									
87898		104257	27.	65	70.24	201	-233		1840	ACT TES	TINC					
Түр	PE		TEM	р	SI	APL# 1			# 2		#3		AVG		%SHEAR	LAT EXP
CHPY			- 75	·			54 L 58 L				52 L		55		32-31-34	.032031030

SUPPLEMENTAL INFORMATION

NORMALIZE@1680F FOR 180MIN_AUSTENITIZE@1600F FOR 180MIN_TEMPER@1260F FOR 240MIN_QTC; SACRIFICIAL PIECE_CHARPY: 10 X 10 X 55 MELT PRACTICE: EAF-LRF-VD-CCM W/ EMS

WE HEREBY CERTIFY THAT ALL TEST RESULTS CONTAINED HEREIN ARE CORRECT AND TRUE AS CONTAINED IN THE RECORDS OF THE COMPANY. ALL TEMPERATURES ARE IN FAHRENHEIT AND IMPACT TESTING IN FT LBS MANUFACTURED IN USA. EN10204 3.1

EPARTMENT

FLANGE MATERIAL INDEPENDENCE CONTRACT DRILLING P.O. NO.: PO00116446 DATE: FEBRUARY 23, 2018 FILE NO .: CSR / SPECO-81069



Speciallies Company copper state rubber, inc. 6401 McGrew St. Houston, Texas 77087 713-644-1491 713-644-9830 Fax csrhouston@msn.com

WELDING PROCEDURE SPECIFICATION, WPS NO: <u>911171-1</u> SECTION IX, ASME BOILER 7 PRESSURE VESSEL CODE, 1989 EDITION, 1990 ADDENDA

COMPANY: COPPER STATE RUBBER, INC. SUBSIDIARY OF SPECIALTIES CO.

BY: <u>KEN FORDYCE</u> DATE: <u>10/07/91</u> REVISED BY: <u>ROGER PEACE</u> TECHNICAL MANAGER COPPER STATE RUBBER

REVISION NO: 5 DATE: 5-31-2005

SUPPORTING PQR(s): 911171-2

REVIEWED 451. mill

INDEPENDENCE CONTRACT DRILLING P.O. NO.: PO00116446 DATE: FEBRUARY 23, 2018 FILE NO.: CSR / SPECO-81069

Marine, Industrial, and Oilfield Hose Made in the U.S.A.

Stud Marrah, environmental and reactivital engineering, monditivative, menularytical and analytical services 222 Connector St. 9 PC: Box 87588 Houseon Toxes 77249 9 713(692-915) HEVIEW28 222 Connector St. 9 PC: Box 87588 Houseon Toxes 77249 9 713(692-915) HEVIEW28 222 Connector St. 9 PC: Box 87588 Houseon Toxes 77249 9 713(692-915) HEVIEW28 222 Connector St. 9 PC: Box 87588 Houseon Toxes 77249 9 713(692-915) HEVIEW28 222 Connector St. 9 PC: Box 87588 Houseon Toxes 77249 9 713(692-915) HEVIEW28 222 Connector St. 9 PC: Box 87588 Houseon Toxes 77249 9 713(692-915) HEVIEW28 222 Connector St. 9 PC: Box 87588 Houseon Toxes 77249 9 713(692-915) HEVIEW28 222 Connector St. 9 PC: Box 87588 Houseon Toxes 77249 9 713(692-915) HEVIEW28 222 Connector St. 9 PC: Box 87588 Houseon Toxes 77249 9 713(692-915) HEVIEW28 222 Connector St. 9 PC: Box 87588 Houseon Toxes 77249 9 713(692-915) HEVIEW28 222 Connector St. 9 PC: Box 87588 Houseon Toxes 77249 9 713(692-915) HEVIEW28 222 Connector St. 9 PC: Box 87588 Houseon Toxes 77249 230(10) 240 240 240 240 240 240 240 240 240 240		
Meerical, environmental and greatchnical trajencting, mondituctive, meetilerylood and analytical territy. 222 Canonecode St. * PCD Box 87588 Mouston Toxes 77248 • 713692-9151 REVIEWS ABB Lattice data ABB Lattice data Contrany: Chapter State Rubber, Inc. subsidiary of Specification, NPS No. 911171-1. Bar Microbi Vice ABB Lattice data Contrany: Chapter State Rubber, Inc. subsidiary of Specification 4. BY Ken Porchoge Date: 10/07/31 Revised By: MOCBA FEASE Date: 7.16-93 MEDINE POCESS(es) TECNNICAL MANAGER MULSION Supporting POR(s): 911121-2 CONTRING (M-402) TECNNICAL MANAGER MALE ALL Supporting POR(s): 911121-2 MULSION Supporting POR(s): 911121-2 MALE ALL Supporting POR(s): 911121-2 MALE ALL TECNNICAL MANAGER MUL apparts Supporting POR(s): 911121-2 MUL apparts Supporting POR(s): 911121-2 MALE ALL JOINTS (M-402) MUL apparts Supporting POR(s): 911121-2 MUL apparts Supporting POR(s): 911121-2 MUL apparts Supporting POR(s): 911121-2 MUL apparts Suporting POR(s): 911121-2	5	BOUTHWESTERN LABORATORIES
MEVIEW235 as indicated in ABE Lative dealed: Section IX, ASME Boiler & Pressure Vessal Code, 1969 Bilition, 1990 Addenda ABE Lative dealed: Section IX, ASME Boiler & Pressure Vessal Code, 1969 Bilition, 1990 Addenda BEE 20 085 Company: Orner State Bubber, Inc. subsidiary of Specialties Co.	1	Materials, environmental and geotechnical engineering, nondestructive, metallurgical and analytical services
Best interpreted in Best interpreted in ABS lector defect Section IX, ASE Boller & Pressure Vessel Oxde, 1995 Biltion, 1990 Adderda BEE # 0 1985 Corpany: <u>Orper State Rither, Inc. subsidiary of Specialties O.</u>	•	222 Cavalcade St. • RO. Box 8768, Houston, Texas 77249 • 713/692-9151
ABS Learner Versel Order, 1989 Edition, 1990 Adderda ABS Learner Versel Order, 1989 Edition, 1990 Adderda ABS Learner Versel Order, 1980 Edition, 1990 Adderda ABS Learner Versel Service Date: 10/07/91 Revised By: <u>BOGER PEACE Date: 7-16-93</u> TECHNICAL MANAGER COPPER STATE RUBBER MEDDIN: PROCESS(es) Auto:	REVIEWED	Welding Procedure Specification WPS No. 011171-1
By Ken Fordyce. Date: 10/07/91. Revised By:RDGER PEACE Date: 7-16-91 By Ken Fordyce. Date: 10/07/91. Revised By:RDGER PEACE Date: 7-16-91 By Ken Fordyce. Date: 10/07/91. Revised By:RDGER PEACE Date: 7-16-91 By Ken Fordyce. Date: 10/07/91. Revised By:RDGER PEACE Date: 7-16-91 By Ken Fordyce. Date: 10/07/91. Revised By:RDGER PEACE Date: 7-16-91 By Ken Fordyce. Date: 10/07/91. Revised By:RDGER PEACE Date: 7-16-91 By Ken Fordyce. Date: 10/07/91. Revised By:RDGER PEACE Date: 7-16-91 By Ken Fordyce. Date: 10/07/91. Revised By:RDGER PEACE Date: 7-16-91 By Ken Fordyce. Date: 10/07/91. Revised By:RDGER PEACE Date: 7-16-91 By Match: Segmatication Construction COMPLEX Structure Structure Structure Structure Structure Structure Structure Structure Construction Code: changes in the design and application and application code: changes in the design and application: 10:00 (1 Ptf 1992) MDT-30° C Hat permitted in this WPS must be specified in a new or revised WPS. Records adder Structure Code WPS. Hold adder Structure Stru		Carting TV ACUE Doilars (Description Manual Carts ADOC Dilling ADOC BALL A
BY Ken Fordyce Date: 10/07/91 Revised By: BOGER PEACE Date: 7-16-93 TECHNICAL MANAGER TECHNICAL MANAGER COPPERS STATE RUBBER WEIDING PROCESS(es) Auto: Semi-auto: GOD-S Mato: Joint Design: The joint may be charged from the appendix and does not include beam net capieal by and composite autor and application. MATO: Single-Mathematical bit bits mato be specified in this WBS must be specified that permitted in this WBS must be specified the an arew or revised WPS. MACOT: Backing: Use backing or backgooxing v/SMM. MATE MADOT: Restainers: metallic/normetallic may be used Superior Backing Type: veld metal or base metal MATE MADOT: Restainers: metallic/normetallic may be used Superior Gorove Thickness Range: 3/16"-8" f/nonimpacts Filter METALS (QF-403) Specification: AISI 4130 API 6A 75K material designation, 207-235 EPN MATE MADOT: Pres Reversion Materia Pipe Groove Diameter Range: all Pipe Fillet Diameter Range: all Pipe fordersion with metal 2.5	DEC 2 0 1995	
HOUSTON SUBJOCTING POR(5): 9111/1-2. COPPER STATE RUBBER WEIDING PACESS(es) Auto:Semi-auto: G90W-S Machine:Manual: SGMP P R OVED Marke C.A.M. JOINTS (QH-402) Joint Design: The joint may be charced from Marual: SGMP P R OVED DOWNS (QH-402) Joint Design: The joint may be charced from Marual: SGMP P R OVED DOWNS (QH-402) Joint Design: The joint may be charced from Marual: SGMP P R OVED DOWNS (QH-402) Joint Design: The joint may be charced from Marual: SGMP P R OVED DOWNS (QH-402) Joint Design: The joint may be charced from Marual: SGMP P R OVED DOWNS (QH-402) Joint Design: The joint may be charced from Marual: SGMP P R OVED DOWNS (QH-402) Joint Design: The joint may be charced from Marual: SGMP P R OVED DAM JC -30°C Interpreterments: including thesis must be specified Interpreterments: Marual: SGMP P R OVED MARCOTS Backing: Use Dacking or backgowing w/SMM. Interpreterments: Marual: SGMP P R OVED Schurze Backing: Use Dacking or backgowing w/SMM. Interpreterments: Interpreterments: Interpreterments:	34ARQ	By Ken Fordyce Date: 10/07/91 Revised By: ROGER PEACE Date: 7-16-93
Auto:	HOUSTON	
BANGE GAR. JOINTS (QH-402) JOINTS (QH-402) Joint Design: The joint may be charged from. JOINT Segments Link to pay other type (e.g. double-V, single-, double-U, single-, double-U, etc.). JOINTS (QH-402) Single-, double-U, single-, double-U, etc.). JOINTS (GH-402) Single-, double-U, single-, double-U, etc.). TO J. 5 "FOR the requirements, including those of the construction code; charges in the design. Including those of the comments. MAT-30° C that permitted in this WPS must be specified in a new or revised WPS. White is consistent with design or backgowing w/SMN. FOR H25 Backing: Use backing or backgowing w/SMN. White field for impacts. FOR H25 Backing: Use backing or backgowing w/SMN. White field for impacts. FOR H25 Backing: Use backing or backgowing w/SMN. Single-V GENELA. FOR H25 Backing: Type: weld metal or base metal. White m20175 NMtE m20175 Retainers: metallic/nommetallic may be used Single-V GENELA. Mixer file Pipe Groove Diameter Range: _all		WEIDING PROCESS(es)
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1101		
How Supports single double-U, single double-J, etc.) FOR J. 5 "Fore which is consistent with design and application requirements, including those of the design incort ago, use of retainers, etc.) beyond MADT-30°C that permitted in this MPS must be specified in a new or revised MPS. Alleborg BLC Backing: Use backing or backgooding w/SMW. Fore Has Backing: Use backing or backgooding w/SMW. Fore Has Backing: Type: weld metal or base metal NATE M20175 Retainers: metallic/normetallic may be used Note M20175 Retainers: metallic/normetallic may be used MATE M20175 Retainers: metallic/normetallic may be used Mixer M20175 Retainer in thickness Range: alll Pipe Groove Diamet	,	
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DMPACT S Construction code; chances in the design (root gap, use of retainers, etc.) beyond 1/16 in 0 0 MDT-30°C that permitted in this WPS must be specified in a new or revised WPS. 1/16 in 0 ACCOPTABLC Backing: Use backing or backgooging w/SMAM. 1/16 in 0 FOR H2 S Backing: Use backing or backgooging w/SMAM. 1/16 in 0 FOR H2 S Backing: Use backing or backgooging w/SMAM. 1/16 in 0 FOR H2 S Backing: Use backing or backgooging w/SMAM. 1/16 in 0 JMME M20/75 Retainers: metallic/normetallic may be used Single=V-Googetan JMME M20/75 Retainers: metallic/normetallic may be used	TO 2.5" FOR	which is consistent with design and applica-
Instruct gap, use of retainers, etc.) beyond 1/16 in 0 In a new or revised WPS. 1/16 in 0 Alegorable Backing: Use backing or backgowging w/SMAW. Following: Backing Type: weld metal or base metal NATE M20175 Retainers: metallic/normetallic may be used Single=V-Growth Single=V-Growth NATE M20175 Retainers: metallic/normetallic may be used Single=V-Growth Single=V-Growth MATE M20175 Retainers: metallic/normetallic may be used Single=V-Growth Single=V-Growth MATE M20175 Retainers: metallic/normetallic may be used Single=V-Growth Single=V-Growth Mut Specification: AISI 4130 API 6A 75K material designation, 207-235 BFN Duiv(new) Specification: AISI 4130 API 6A 75K material designation, 207-235 BFN Duiv(new) Specification: AISI 4130 API 6A 75K material designation, 207-235 BFN Duiv(new) Specification: AISI 4130 API 6A 75K material designation, 207-235 BFN Duiv(new) Specification: AISI 4130 API 6A 75K material designation, 207-235 BFN Mut Pipeada past of the Nonegar Part of the No		
MIDT - 50 C in a new or revised WFS. ACCEPTABLE Backing: Use backing or backgouging w/SMAW. FOR H2 5 Backing Type: weld metal or base netal NATE M20175 Retainers: metallic/normetallic may be used Single=V-Growth Nate M20175 Retainers: metallic/normetallic may be used Single=M20	,	
MCCEPIND CL Backing: Use backing or backgooxing W/SMAW. GREWAYER For H12 5 Backing Type: weld metal or base metal MALE MC20175 Scrutter Backing Type: weld metal or base metal MALE MC20175 NME MC20175 Retainers: metallic/normetallic may be used Single-V-Grout STME TX BASE METALS (QM-403) Specification: AISI 4130 API 6A 75K material designation, 207-235 EMN DM V (Aus) Specification: AISI 4130 API 6A 75K material designation, 207-235 EMN For compliance with the Norweglan Particular of th	MDT-30° C	
ScRVice: Backing Type: weld metal or base metal Single=V*Growth NATE M20/75 Retainers: metallic/nonmetallic may be used Single=V*Growth ASME TI BASE METALS (CM-403) Specification: AISI 4130 API 6A 75K material designation, 207-235 EFN DM V (MOU) Specification: AISI 4130 API 6A 75K material designation, 207-235 EFN For compliance with the Point Complete State of the Point Complete Point Complete State of the Point Complete Point Comple		the algorithm of the algorithm and the algorithm of (2001)
While MP20175 Retainers: metallic/normetallic may be used Single=V-Grove ASME TX BASE METALS (QM-403) Specification: AISI 4130 API 6A 75K material designation, 207-235 EMN DW V(Aug.) Specification: AISI 4130 API 6A 75K material designation, 207-235 EMN Groove Thickness Range: 3/16"-8" f/nonimpacts Fillet Thickness Range: all Pipe Groove Diameter Range: all Pipe Fillet Diameter Range: all Pipe Groove Diameter Range: all Pipe Fillet Diameter Range: all Other Base Metal Thickness Limitations: Norwegtan Potoleurs Other Base Metal Thickness Limitations: Norwegtan Potoleurs Other Base Metal Thickness Limitations: EED04/SIGME_FOR T PILLER METALS (QM-404) Rescuests "ACTS, AWS Class No.: Cnly A-No. 11 low hydrogen electrodes (E10018-D2, Exox15-D2, & Exox16-D2) are qualified for impacts; only ER80S-D2 is qualified for impacts. Specification: 5.28, GMAW; 5.5, SMAW F-No.: 6, GMAW; 4, SMAW A-No.: 11 NSTALLATIONS Size: 0.05"-0.045" diameter for GMAW-S; 1/8"-1/4" diameter for SMAW NOTOFFSMORE Groove Weld Size/Deposit Range: 0.14" max, for GMAW-S; 2.36" max, for SMAW INSTALLATIONS, 1074' Immacts; 7.86" max.for SMAW ponimpacts NISTALLATIONS, 1074' any EQUILATIONS, 1074' Cher: The maximum SMAW bead size qualified for impacts		
ASME TX. BASE MEIALS (QM-403) DM (Aug) Specification: AISI 4130 API 6A 75K material designation, 207-235 EMN Groove Thickness Range: 3/16"-8" f/nonimpacts Fillet Thickness Range: all For complance with the Point of the parts of the Nonveglan Partice of the Nonveglan Partis of the Nonveglan Partice of the Nonveglan Partice of		Watural
DM V (hus) Specification: AISI 4130 API 6A 75K material designation, 207-235 EHN DEFCE Groove Thickness Range: 3/16"-8" f/nonimpacts Fillet Thickness Range: all For complance with the For complance with the Nonveglan Poteloum Miller Pipe Groove Diameter Range: all Pipe Fillet Diameter Range: aPhotMa parts of the Nonveglan Poteloum Other Base Metal Thickness Limitations: Nonveglan Poteloum (1) 1.65" maximum for any single weld pass thicker than 1/2." ESGULATIONS AN (2) 5/8" minimum to 2.5" maximum for impacts ESGULATIONS AN FEEDUSCOMS CON-404) PETROLEUM INDUST AWS Class No.: Only A-No. 11 low hydrogen electrodes (E10018-D2, Exoc15-D2, E Exoc16-D2) are cualified for impacts; only ER80S-D2 is qualified for impacts; only ER80S-D2 is qualified for impacts; Croove Weld Size/Deposit Range: 0.14" max. for GMAW-S; 2.36" max. for SMAW KOEN OFFSHORE Groove Weld Size/Deposit Range: 0.14" max. for GMAW-S; 2.36" max. for SMAW INSTALLATIONS immacts; 7.86" max.for SMAW ponimpacts MINSTALLATIONS, 1074" EGULATIONS, 1074" EGULATIONS, 1074" Cottler: The maximum SMAW bead size qualified for impacts is 3/16" thick x 1/2" wide x 6" long. See foot note to Table 1. Solid bare wire must be		Recallers: <u>netallic/nounecallic may be used</u> Single-V troove
Groove Thickness Range: <u>3/16"-8" f/nonimpacts</u> Fillet Thickness Range: <u>all</u> For complete even the the for complete even the for	ASME IX	
Groove Thickness Range:	DAIN (ALOU)	Specification: AISI 4130 API 6A 75K material designation, 207-235 BHN
Pipe Groove Diameter Range: all Pipe Fillet Diameter Range: are: Nowagian Particum Dimeter Range: are: Nowagian Particum Other Base Metal Thickness Limitations: (1) 1.65" maximum for any single weld pass thicker than 1/2." Dimetorate's "ACTS. (2) 5/8" minimum to 2.5" maximum for impacts FEGULATIONS AN (2) 5/8" minimum to 2.5" maximum for impacts FEGULATIONS AN (2) 5/8" minimum to 2.5" maximum for impacts FEGULATIONS AN (2) 5/8" minimum to 2.5" maximum for impacts FEGULATIONS AN PTILER METALS (CW-404) AVS Class No.: Cnly A-No. 11 low hydrogen electrodes (E10018-D2, E00015-D2, E0001	DEIZC	Groove Thickness Range: 3/16"-8" f/nonimpacts Fillet Thickness Range: all
Numerican Norwegten Petroleum Norwegten Petroleum Directorate'n "ACTS. (1) 1.65" maximum for any single weld pass thicker than 1/2." Directorate'n "ACTS. (2) 5/8" minimum to 2.5" maximum for impacts EEOUS/ONS FOR T PTILER METALS (QW-404) AWS Class No.: Cnly A-No. 11 low hydrogen electrodes (E10018-D2, Exoci5-D2, 5 Exoci6-D2) are qualified for impacts; only ER80S-D2 is qualified for impacts. Specification: 5.28, GMAW; 5.5, SMAW F-No.: 6, CMAW; 4, SMAW A-No.: 11 For conscience with Size: 0.035"-0.045" diameter for GMAW-S; 1/8"-1/4" diameter for SMAW KOEN OFFSMORE Groove Weld Size/Deposit Range: 0.14" max. for GMAW-S; 2.36" max. for SMAW INSTALLATIONS impacts; 7.86" max.for SMAW ponimpacts INSTALLATIONS, 1074* CHER Size Range: any EGULATIONS, 1074* Other: The maximum SMAW bead size qualified for impacts is 3/16" thick x 1/2" wide x 6" long. See foot note to Table 1. Solid bare wire must be	Ha Start	
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AWS Class No.: <u>Only A-No. 11 low hydrogen electrodes (E10018-D2, Exx15-D2, & Exx16-D2) are gualified for impacts; only ER80S-D2 is gualified for impacts. Specification: <u>5.28</u>, <u>GMAW; 5.5</u>, <u>SMAW</u> F-No.: <u>6</u>, <u>GMAW; 4</u>, <u>SMAW</u> A-No.: <u>11</u> For connectance with <u>Size: 0.035"-0.045" diameter for GMAW-S; 1/8"-1/4" diameter for SMAW</u> K DEN "OFFSHORE Groove Weld Size/Deposit Range: <u>0.14" max. for GMAW-S; 2.36" max. for SMAW</u> INSTALLATIONS <u>impacts; 7.86" max.for SMAW nonimpacts</u> INSTALLATIONS <u>summer</u> <u>5.28</u> any EGULATIONS, <u>1074</u>" Other: <u>The maximum SMAW bead size gualified for impacts is 3/16" thick x</u> <u>1/2" wide x 6" long.</u> See foot note to Table 1. Solid bare wire must be</u>		PETROLEUM INDUST
<pre>& Exox16-D2) are qualified for impacts; only ER80S-D2 is qualified for impacts. Specification: 5.28, GMAW; 5.5, SMAW F-No.: 6, GMAW; 4, SMAW A-No.: 11 For connectance with Size: 0.035"-0.045" diameter for GMAW-S; 1/8"-1/4" diameter for SMAW K DEN "OFFSHORE Groove Weld Size/Deposit Range: 0.14" max. for GMAW-S; 2.36" max. for SMAW INSTALLATIONS impacts; 7.86" max.for SMAW nonimpacts INSTALLATIONS summer Fillet Size Range: any EGULATIONS, 1074" Other: The maximum SMAW bead size qualified for impacts is 3/16" thick x 1/2" wide x 6" long. See foot note to Table 1. Solid bare wire must be</pre>		
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1/2" wide x 6" long. See foot note to Table 1. Solid bare wire must be		
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MPS No.: 911171-1 Page 2 of 2

POSITIONS (QW-405)	WELD & BASE METAL TEMPERATURES (QW-406)
Groove: <u>flat for impacts</u>	Preheat: 200°F for T to 1": 300°F over 1"
Fillet: <u>flat for impacts</u>	Interpass: 600°F for impacts
Vertical Progression: <u>up or down</u>	Maintenance: none
POSIWELD HEAT TREATMENT (QW-407) Temperature Range: <u>1200°F-1225°F</u> or 20°F-30°F below base metal tempering temperature.	Time Range: <u>1 hour per inch of section</u> thickness

SHITELDING, BACKING, TRATLING GAS (OH-408)

Gas Type/Mix	Percent Mixture	Flow Rate (cfh)
Argon/CO2*	75% Ar/25%002*	30 Minimum
none*	none	none
none	none	none
	Gas Type/Mix Argon/CO2* none*	Argon/002* 75% Ar/25%002* none* none

ELECTRICAL CHARACTERISTICS (QW-409)

Current & Polarity: DC reverse (DCEP) Heat Input: See Table 1 note. Voltage: See Table 1. Transfer Mode:: short-circuiting for GMAW-S

TECHNIQUE (QW-410)

String or Weave: string only for impacts*

Cleaning: wire brush, chip, grind, or other suitable means to remove slag, rust, scale, grease, or other harmful materials from the weld fusion zone Method of Back Gouging: mechanical or thermal cutting (w/specified preheat) Tube to Work Distance: 1/4"-1/2" Passes per Side: multiple only for impacts Electrodes: single only for impacts Peening: may be used on intermediate GMAW Gas Cup Size: Nos. 3-8 passes to reduce shrinkage stresses

TABLE 1

ESSENITAL & NONESSENITAL PROCEDURE VARIABLES

Pass		Filler Metal		Qu	rent		Trave	21
No.	Process	Class	Dia.	Type	Amps.	<u>Volts</u>	_Direction	Speed
1	GMAW-S	ER80S-D2	0.035	DCEP	60-130	15-20	Flat	7.0 ipm
Any	SMAW	E10018-D2	1/8	DCEP	110 - 140	18-25	Flat	7.0 ipm

MOTE: The maximum bead size that may be deposited for impacts in any pass is 3/16" thick x 1/2" wide x 6" long with 1/8" diameter electrodes.

This WPS was documented to code requirements by Koly Voldy of SwL as Report No. 911171-1. It gives the values and/or limits of essential, supplementary essential, and nonessential welding variables permitted by Section IX of the ASME Code as a result of successful The essential and supplementary essential procedure qualification. variables may be changed within the limitations of ASME Section IX, QW-250 without requalification. Changes outside those limits require requalification of the altered procedure.

a Date: 10/07/91 Pile No.: 12-8075-00

Reviewed By:

SUL

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Materials, environmental and geolechnical engineering, nondestructive, metallurgical and analytical services 222 Cavalcade St. • P.D. Box 8768, Houston, Texas 77249 • 713/692-5:151

Prodecure Qualification Record, POR No. <u>911171-2</u> Section IX, ASME Boiler & Pressure Vessel Code, 1989 Edition, 1990 Addenda

Date: 10/07/91 WPS No. (s): 911171-1

WELDING PROCESS(es)

Auto: _____ Semi-auto: GMAW-S Machine: ____ Manual: SMAW

JOINTS (QW-402) Single-V-Groove Weld with No Backing Root Gap = 1/8" Root Face = 1/16" Groove Angle = 70° 1st 3/4" Groove Angle = 33° 2nd 3/4" Joint Design Diameter of Test Coupon: 10" OD Other: normalized, guenched, tempered to 228 BHN (Heat No.A2769)

FILLER METALS (QW-4)	24)		POSITION (QN-405)	
Spec Class.	F-No.	A-No.	Dia.	•
				Position of Joint: 1G Rolled
SMAW: 5.5 E10018-D	2 4	11	1/8"	Progression of Weld See Table 1.

POSTWELD HEAT IREAIMENT (OW-4(17)

Preheat: <u>300°F minimum</u> Interpass: <u>500°F maximum</u>

 100°F minimum
 Temperature: 1230°F

 00°F maximum
 Time: 2-1/2 hours

 Other: ---

GAS (QW-408)	ELECTRICAL (QW-409)
Shielding Gas: Argon & CO2	Voltage: See Table 1.
Mixture: 75% Ar, 25% CO2	Current: See Table 1.
Shielding Flow Rate: 30 cfh	Mode of Transfer: Short Circuiting
	Heat Input: See Table 1 note.

TECHNIQUE (QW-410)	
String or Weave: String & Weave	Machine Oscillation: NA
Passes per Side: multiple	Number of Electrodes: NA
Deposit Thickness 1/8" GMAW; 1-3/8" SM	AW

TAHLE 1

ESSENTIAL & NONESSENTIAL PROCEDURE VARIABLES										
Pass				Current			Travel			
No.	Process	Class	Dia.	Type	Amps.	<u>Volts</u>	Direction	Speed		
1	GMAW-S	ER80S-D2	0.035	DCEP	60-130	15-20	Flat	7.0 jpm		
2-24	SMAW	E10018-D2	1/8	DCEP	110-140	18-25	Flat	7.0 ipm		

<u>NOTE</u>: The maximum volume of weld metal deposited during any single pass was a 3/16" thick x 1/2" wide bead in a 6" length using a 1/8" diameter E10018-D2 electrode.

Our letters and reports are for the exclusive use of the client to whom they are addressed. The use of our name must receive our prior written approval. Our letters and reports apply only to the sample tested and/or inspected, and are not necessarily indicative of the qualities of apparently identical or similar products.

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POR No.: <u>911171-2</u> Page 2 of 3

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	TENSILE TEST Nos. 57022 & 57103 (0H-150)										
Specimen No.	Width c Dia. (in.)	r 'Inickness (in.)	Area (in. ²)	Ultima Load (lb.)	te Stress (psi.)	Ultimate Failure Location					
1	0.748	1.296	0.9694	98,710	101,800	Weld Metal					
2	0.748	1.378	1.0307	105,700	102,500	Weld Metal					

GUIDED BEND TEST Nos. 57022 & 57103 (OM-160) Type & Figure No. Result

Four Side Bends per QW-462.2

Satisfactory

		TOUG	HNESS TEST	No. 571	03 (OW-	170)		
Specimen Notch Notch Test Impact Lateral Exp Section Size								
No.	Location	Туре	Temp(°C)	Values	Mils	Shear?	at Note	1 (mu)
1	We].d	Vee	-15	88	60	75	8	10
2	Weld	Vee	-15	29	39	. 30	8	10
З	We).d	Vee	-15	32	42	30	8	10
			Fusi	on Line (FL)			
1	FL	Vee	-15	52 -	37	60	8	10
2	FL	Vee	-15	47	36	60	8	10
3	FL	Vee	-15	56	43	60	8	10
1	FL+2mm	Vee	-15	104	70	75	8	10
2	FL+2mm	Vee	~15	118	74	75	8	10
3	FL+2mm	Vee	-15	102	68	75	8	10
1	FL+5mm	Vee	-15	108	70	75	8	10
2	FL+5mm	Vee	-15	106	68	75	8	10
3	FL+5mm	Vee	-15	105	65	75	8	10

Rockwell Hardnes Left Base Metal Zones Unaffected Heat Affected			We	ld	Right Base Metal Zones Unaffected Heat Affected				
No.	HRB	No.	HRB	No.	HRB	No.	HRB	No.	HRB
1.	97.2	2.	98.7	3.	96 .6	6.	98.3	7.	96.7
				4.	96.9				
				5.	96.6				
	Rockwell Hardness Survey (at midwall)								
--------------------------	---------------------------------------	------------	------	-----	-------	--------------------------	------	-----	------
		se Metal Z		ld		Base Me			
Unaffected Heat Affected		cted	. /		Unaff	Unaffected Heat Affected			
No.	HRB	No.	HRB	No.	HRB	No.	HRB	No.	HRB
8.	93.6	9.	93.5	10.	92.9	12.	95.8	13.	98.3
				11.	97.7				

		Roc	kwell Har	dness Sur	vey (2mm	below ro	ot of we	10)	
1	left Base	Metal Z	ones	We	ld	Right	Base Me	tal Zo	nes
Unafi	fected He	at Affe	cted			Unaff	ected H	eat Af:	fected
No.	HRB	No.	HRB	No.	HRB	No.	HRB	No.	HRB
14.	95.6	15.	99.9	16.	96.4	17.	97.9	18.	99.9

You This POR was documented to code requirements by ____ of SwL as Report No. 911171-2 from the welding variables recorded by Copper State Rubber, Inc. during the welding of the test coupons and the results of tensile, guided-bend, hardness, and charpy impact tests performed by SwL.

Date: 10/07/91

Reviewed By:

Welder: Randy Wiseman ID/Stamp No.: 234-48-95

We, the undersigned, certify that the statements in this record are correct and that the test welds were prepared and tested in accordance with code requirements.

Signed: Copper State Rubber, Inc.

Client No.: 12-8075-00

Date: OCT 8, 1991

Eace GAER 1 By:___

ROGER D. PEACE

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Welder Qualification Test Record, WQTR No. 930635-1 Section LX, ASME Boiler & Pressure Vessel Code, 1992 Edition

Using WPS No. 911171-1 Rev. 1, Welder Jay B. Williams, ID No. 453-06-6487, qualified for the following ranges.

Test Variables	Test Values	Qualification Range
PROCESS:	GMAW-S	GMAW-S Only
BACKING	Without	With or Without
MATERIAL SPECIFICATION	Quenched & Tempered AISI 4130 To API 6A TP 75K	P-No. 1 through P-No. 11, P-No. 4X and unassigned metals of similar chemical composition
DEPOSIT THICKNESS:		A Service of the second se
CROOVE	1/8"	9/64" Maximum
FILLET	Not Applicable	Any Any Any Surface The
DIAMETER:	a an	And the second
CROOVE	4-1/2" OD	111 1. (1998) 2-7/8" OD & Over
FILLET	Not Applicable	Any
FILLER METAL:		
SPECIFICATION	SFA-5.28	·希望于我们认识,我们就在这些问题,我们就是一个问题。""你们就是你们
CLASSIFICATION	AWS ER80S-D2	na shi ƙwallon
F.NO	6	6, or any bare wire conforming to an analysis listed in QW-442
POSITION:	16	Flat Only
VERTICAL WELDING DIRECTION:	Not Applicable	a an
BACKING GAS:	Without Mithout	With or Without any or without

Examination & Test Results

GUDED-BEND TEST NO. 60596 PER QW-160:		RESULT:
Two Side Bends per QW-462.2	All the second states and	Satisfactory

NOTE: The Guided-bend tests were witnessed by Glen R. Lauritsen, Principal surveyor, ABS AMERICA, a division of The AMERICAN BUREAU of SIIIPPING.

This WQTR was documented to Code requirements by of SwL as Report No. 930635-1 from the welding variables recorded by Copper State Rubber, Inc., Specialties Co. during the welding of the test coupon and the results of guided-bend tests performed by SwL.

DATE: FILE NO .: . 12-8075-00 May 12, 1993 000

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Welder Qualification Test Record, WQTR No. 930635-2 Section IX, ASME Boiler & Pressure Vessel Code, 1992 Edition

Using WPS No. 911171-1 Rev. 1, Welder Jay B. Williams, ID No. 453-06-6487, qualified for the following ranges.

Test Variables	Test Values	Qualification Range
PROCESS:	SMAW	SMAW Only
BACKING	With Star	With Only
MATERIAL SPECIFICATION:	Quenched & Tempered AISI 4130 to API 6A TP 75K	P-No. 1 through P-No. 11, P-No. 4X and unassigned metals of similar chemical composition.
DEPOSIT TUICKNESS		
CROOVE	5/8"	1-1/4" Maximum
FILLEY STATES	Not Applicable	Any Any
DIAMETER	the second second second second	Sector statistics and the sector of the sector of the
GROOYE		2-7/8" OD & Over 100 10 10 10
FILET A	Not Applicable	Any start the second Any start and start the second
FILLER METAL:	n and a second	We want the second s
SPECIFICATION	SFA-5.5	M. C. C. MARLER MARKED TO BE SHE HAVE A CARAGE
CLASSIFICATION	AWS E10018-D2	
F-NO.	and a start of the second s	Red and had more last 1, 2, 3, & And supergradients
POSITION	16.00 States 16.00	Flat Only
VERTICAL WELDING DIRECTION:	Not Applicable	BAN DE TAN DE TANDA HANDER AND
BACKING GAS	Not Applicable	Antonio de la Acedar de tempo de

Examination & Test Results

GUIDED-BEND TEST NO. 60596 PER QW-160:	na an a		RESULT:	112
Two Side Bends per QW-462.2	the second s International second	a conta da contra da	Satisfactory	

NOTE: The Guided bend tests were witnessed by Glen R. Lauritisen, Principal surveyor, ABS AMERICA, a division of The AMERICAN BUREAU of SIIIPPING.

This WQTR was documented to Code requirements by Key Journ of SwL as Report No. 930635-2 from the welding variables recorded by Copper State Rubber, Inc., Specialties Co. during the welding of the test coupon and the results of guided-bend tests performed by SwL.

DATE FILE NO .: May 12, 1993 12-8075-00

American Bureau of Shipping

TWO WORLD TRADE CENTER, 106TH FLOOR NEW YORK, NEW YORK 10048

93-11857593

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6 May 1993

WELDER OUALIFICATION TEST

Jay Williams Welder's Name: S.S. No:453-06-6487 Identification

OUALIFICATION TESTS:

SPECIFICATION - ASME CODE, SECTION 1X, Boiler & Pressure vessel code, 1989 Ed, 1990 ad. WELDING PROCESS - Scmi-Auto: GMAW-S - Manual: SMAW JOINT TYPE - Single-V-Groove Weld with no backing BASE MATERIAL TYPE - AISI 4130, API 75k designation BASE MATERIAL THICKNESS/SIZE - 1-1/2" thick FILLER METAL TYPE - GMAW Spcc 5.28 ER805-D2 SMAW Spcc 5.5 E10018-D2 FILLER METAL "F" - NO. F-6, F-4

TEST POSITION - 1G Rolled

GUIDED BEND TEST RESULTS:

Specimen No.	Туре	Results
S-1	Side	Satisfactory
S-2	Side	Satisfactory

POSITION AND TYPE WELD QUALIFIED;

MATERIAL GROUP: **FILLER METAL GROUP:**

API 75k designation GMAW 5.28 Spec ER805-D2 SMAW 5.5 Spcc E10018-D2

MATERIAL

THICKNESS/SIZE

GROOVE PLATE & PIPE FLAT WELD: MAX TO BE WELDED PLATE & PIPE FILLET ALL FLAT PLATE & PIPE ALL WELD FLAT

wyn R.G. Carver, Surveyor

POSITION

G.R. Cautition hw.

NOTE: This Report evidences that the survey reported herein was carried out in compliance with one or more of the Rules, guides, standards or other criterio of American Bureau of Shipping and is issued solely for the use of the Bureau, its committees, its clients or other authorized entities. This Report is a representation any that the vessel, structure, item of material, equipment, machinery or any other item covered by this Report has been examined for compliance with, or hes met one or more of the Rules, guides, standards or other criteria of American Bureau of Shipping. The volidity, applicability and interpretation of this Report is governed by the Rules and standards of American Bureau of Shipping who shall remain the sole judge thereof. Nothing contained in this Report or in any notatian made in contemplation of this Report shall be deemed to relieve any designer, builder, owner, menulactiver, seller, supplier, repairer, operator or other entity of any warranty express or implied.

AB 141 Revised 12/85

American Bureau of Shipping



STATEMENT OF FACT

CERTIFICATE NO.

93-HS57593

PORT OF

Houston, Texas

DATE 6 May 1993

Chiffs is to Certify that the undersigned Surveyor to this Bureau, did, at the request of Copper State Rubber/Specialties of Houston, Texas on the 28th day of April 1993 and in order to witness and report on Welder Qualification Test. For further particulars, see report as follows:

1. The following welder was tested in accordance with Section IX of ASME Boiler and Pressure Vessel Code and the American Welding Society Structural Welding Code. Weld Specimens were physically tested, examined and found satisfactory.

Jay Williams S.S. NO. 453-06-6487

2. For particulars on tests performed, material, electrodes and positions qualified for, see attached sheet.

R.G. Carver, Surveyor

(J.R. (a G.R. Lauritsen, Surveyor

This Certificate evidences compliance with one or more of the Rules, guides, standards or other criteria of American Bureau of Shipping and is issued solely for the use of the Bureau. Its committees, its clients or other authorized entities. This Certificate is a representation only that the vessel, equipment, structure, item of material, machinery or any other item covered by this Certificate met one or more of the Rules, guides, standards or other criteria of American Bureau of Shipping. The validity, applicability and interpretation of this Certificate is governed by the Rules and standards or other criteria of Shipping who shall remain the sole judge thereof. Nothing contained in this Certificate or in any Report issued is contemplation of this Certificate is end standards or other shall be deemed to relieve any designer, builder, owner, manufacturer, seller, supplier, repairer, operator or other entity of any worrenty express or implied.

A8 120 [Revised 2/81]



Projects: Charpy Impact Testing of a Procedure Qualification Test Weld

PROJECT INFORMATION

WELDING PROCEDURE:	Previously qualified WPS No. 911171-1 (supported by PQR No. 911171-2)
WELDMENT AS-RECEIVED:	AISI 4130, as-welded condition
IDENTIFICATION:	Heat No. A2769
SPECIFICATIONS:	ABS, Guide for the Certification of Drilling Systems, 1990

Post Weld Heat Treatment

SPECIFICATION:	PQR No. 911171-2
TIME:	2 hours at temperature
TEMPERATURE:	1200' F-1210' F
HEATING RATE:	212' F per hour from 700' F
DOLING RATE:	318' F per hour to 700' F

11. Q'a * * *.

1	TEAT TREATMENT:	No. 60973	HEAT TREATMENT DATE:	Jul	ly 12, 1993	

Charpy Impact Test Results

SPECIFICATIONS:	0.015" lateral expansion	TEST TEMPERATURE:	Minus 30 ° C		
LINEAR HAMMER VELOCITY:			16.8 feet per second		
EFFECTIVE ENERGY:	264 foot pound force	TECHNICIAN:	M. Petersen		
SPECIMEN TYPE & SIZE: ASTM A 370, E 23, Type A; 10 mm x 10 mm					
LOCATION & ORIENTATION:					
	below the surface and transverse	to the weld axis			
TEST EQUIPMENT:	Tinius Olsen Serial No. 103222	TEST PROCEDURE:	ASTM A 370, E 23		
TEST NO.:	60988	TEST DATE:	July 14, 1993		

SPECIMEN IDENTIFICATION	WIDTH, INCHES	EFFECTIVE THICKNESS, INCHES	IMPACT ENERGY, FT- LBF	LATERAL EXPANSION, MILS	PERCENT DUCTILE FRACTURE
930949-1-1 (WELD)	0.394	0.316	60	40	25
930949-1-2 (WELD)	0.394	0.316	59	40	25
930949-1-3 (WELD)	0.394	0.316	62	42	25

930949-2-1 (11AZ)	0.394	0.316	49	32	25
930949-2-2 (IIAZ)	0.394	0.316	101	60	50
930949-2-3 (IIAZ)	0.394	0.316	40	22	25

REPORT NO. : 930949

SOUTHWESTERN LABORATORIES Page 2 of 2

COPPER STATE RUBBER COMPANY

SPECIMEN IDENTIFICATION	WIDTIL INCHES	EFFECTIVE THECKNESS, INCHES	IMPACT Energy, FT- LDF	LATERAL EXPANSION, MILS	PERCENT DUCTILE FRACTURE
930949-3-1 (2 MM)	0.394	0.315	76	50	60
930949-3-2 (2 MM)	0.394	0.315	7]	47	60
930949-3-3 (2 MM)	0.394	0.315	114	69	90
930949-4-1 (5 MM)	0.394	0.315	80	47	70
930949-4-2 (5 MM)	0.394	0.315	82	51	70
930949-4-3 (5 MM)	0.394	0.315	75	45	70

COMPLIANCE:

The impact test results met the specification.

Reviewed By: KF/kf

Rey

Prenar



Det norske Veritas Industry, Inc. 16340 Park Ten Place, Suite 100 Houston, Texas 77084 Tel: (713) 579-9003 Facsimile: (713) 579-1360

INSPECTION REPORT

Page 1 of 1

QAS Project Number: 51-05428-63	QAS Report Number: 51-05428-63-1					
P.O. Number: 2322RP	Inspection Date: February 18, 1994					
Main Vendor: Copper State Rubber	Insp. Location: Houston, Texas					
Sub Vendor: N/A	Vendor Contact: Roger Peace					
Vendor Ref: wps 911171-1	Vendor Phone: 713 644 1491					
Req. No: N/A	Quantity: N/A					
Part No: N/A	Serial No: N/A					
EQUIPMENT DESCRIPTION: Weld Procedure Review						

Inspection Comments:

Purpose of Inspection:	Review Weld Procedure.
Acceptance Criteria:	ASME IX NACE MR-0175 DNV Rules Drill(N), MOU

None

Reference Documents:

Scope of Activity:

DNV reviewed the above Weld Procedure and found it to be in compliance with the above referenced standards with comments (see front page of WPS for comments).

FAX: Yes	Date:	02/18/94	Signature: Harold Melton Lar
Distribution: Original to Client: Copy to File:	Copper State Rubber 51-05428-63 (D-217)	Attn: Roger Peace	FAX #: 713 644 9830

Det Norska Veritas Industry, Inc. Form No: QAS-51-015.00



February 18, 1994

Copper State Rubber Attn: Roger Peace 6401 McGrew Street Houston, Texas 77087

Reference: WPS No: 911171-1 Rev. 4

DNV Reference: 51-05428-63

Dear Mr. Peace

Please find enclosed one copy of the referenced weld procedures for your review and action as noted below:

- Reviewed with comments - for your records (For comments - see front page of W.P.S.)

The referenced weld procedure was reviewed against the following standards (latest revision):

<u>X</u>	ASME IX	·	DNV Tech. Note B-108
	AWS D1.1		DNV Rules - Lifting Appliances
	API 6A		DNV Rules - Submarine Pipelines
X	NACE MR-01-75	<u>_X</u>	DNV Rules - Drill(N) for Mobile Offshore Units

If you should have questions or comments regarding this review, please do not hesitate to contact us and discuss it.

Regards, Harold Melton Q.A. Specialist

Procedure # RT-3

Radiographic Specialists, Inc.

4110 Mohawk	Houston,	Τx	77093
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	Phone: 281-449	9-1834	Fe	x: 281-449-	1640	
IF-Inadequate Fusion I BTA-Burn Through Area C	OU-Outside Undercut	ge:	17-2	5-	_OF:	7
SL-Slag Line L SI-Slag Inclusion	_C-Low Crown S/C	: CSR	18608.	-LA I	L-B	
P-Porosity	P/C		5/KI			
GP-Gas Pockel	Sp Sp	ec/Heat/Oth	er: <u>ASM</u>	ESEC 1	mi	NIZ 11WST
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The results reported rep	resent opinions only and	are not to be co	risidered as i	warranties d	or guarantees	s of quality, classification,

The results reported represent opinions only and are not to be considered as warranties or guarantees of guarantee

RADIOGRAPHIC SPECIALISTS, INC.

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4110 MOHAWK HOUSTON TX 77093	PHONE (281) 449-1634 PAX (281) 449-1640
RESULTS OF TEST O	N STEEL SPECIMENS
TO: COPPER STATES RUBBER/SPECIAL TIES COMPANY	DATE: 05-31-05
	LAB TEST NO: 05-31-9036
MATERIAL:	CUSTOMER JOB NO:
SPEC. IDENTIFICATION: 5" PIPE PQR TEST TONY AN	DAMS
Other Test	
CHARPY IMPACT -30 DEG F	
WELD METAL	HAZ.
55 FT LBS 30% SHEAR .048 LAT EXP	125 FT LBS 60 % SHEAR .091 LAT EXP
60 FT LBS 30% SHEAR .062 LAT EXP	120 FT LBS 60% SHEAR .085 LAT EXP
55 FT LBS 30% SHEAR .048 LAT EXP	125 FT LBS 60 % SHEAR .091 LAT EXP

WITNESS BY: ______ RADIOGRAPHIC SPECICALISTS, INC.

COPIES:

BY: TIM BRADLEY II



8902 N. MAIN HOUSTON, TX 770220 Ph: 713-692-3410 Fax: 713-692-3910

Customer: 00000074 SPECIALTIES COMPANY 6401 MC GREW HOUSTON, TX 77087 Certification Order Number 35022

Shipped To: WILL CALL 6401 MC GREW HOUSTON, TX 77087

Custom	er Purcl	hase Order N	o. Cust	omer Shipp	er No.	Material 1	ype Ma	l'i Heat Cod	e L	ot Number	
	486	19				AN	Y				
Process:	STRE	ISS RELIE		OCESS	SING SI	PECIF	CATION	<u>s</u>			
Requirem	ent	Specif	ïed		Qty Teste	d	Test Results				
Line#		Quantity	Weight	Part Nur	nber/Descript	ion				Revision	
1 2 3	1 1 21.0 6" OD X 4-1/4" ID X 13" LENGTH 2 WELD TEST COUPON										
Operation		Spec Temp Range	Specified Soak Time	Fumace# Load#	Atmos/Dpt CarbPot	Q-Media Q-Temp	Start Date	Time In	Time Out	Date Complete	
STRESS		1200	1:00	3			05/18/2005	2:45	6:30	05/18/2005	

COMMENTS

Date Sighed JAME IUSGROVE · _

IDENTIFICATION 5" PIPE PQR TEST TONY ADAMS

> REVIEW OF REPUBLIC WORK ORCER C CENTS TO CUSTOMER FEOLIREMENTS

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FROM SAGEMACHINE

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FAX NO. : 7137476852 May. 10 2005 02:05PM P1

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Speciallies Company experies elebo rubber, inc. 6401 McGrew St. Houston, Texas 77087 713-644-1491 713-644-9830 Fax csrhouston@msn.com

ADDENDUM

WELDING PROCEDURE SPECIFICATION, WPS NO.: 911171-1 PROCEDURE QUALIFICATION RECORD, PQR NO.: 911171-2

COMPANY: COPPER STATE RUBBER, INC./SUBSIDIARY OF SPECIALTIES COMPANY

- REVISION 1: DATE 1-31-92 CORRECT TYPOGRAPHIC ERROR STRINGER PASS, AMPERES AND VOLTS
- REVISION 2: DATE 5-12-93 JAY B. WILLIAMS I.D. NO.: 453-06-6487 QUALIFIED TO THIS WPS; WQTR NOS.: 930635-1 AND 930635-2
- REVISION 3: DATE 6-14-93 CORRECT TYPOGRAPHIC ERROR SMAW PROCESS, AMPERES AND VOLTS
- REVISION 4: DATE 7-16-93 WPS QUALIFIED FOR CHARPY IMPACTS AT -30°C; SwL REPORT NO.: 930949
- REVISION 5: DATE 5-31-2005 CHANGE STRESS RELIEVE TIME FROM 2 HOURS TO 1 HOUR

REVIEWE

Marine, Industrial, and Oilfield Hose Made in the U.S.A.





Page 1 of 1

Specialties Company 14141 S. WAYSIDE DR. Houston, TX 77048 USA

Certification ID: 38120-1 Date: 11/21/2017 Cert Date: 11/21/2017 Purchase Order: 7494 Material: ANY

We are pleased to provide you with the following Certification.

Part Number	Part Description	Qty	Weight
NONE	3"CK W/4-1/16 10M FLANGE, S/N: H1283-H1266	4	820.00
NONE	4"CK W/4-1/16 10K HUBS, S/N: 80868-1,2	2	0.00

Customer	Requirements

++	Spec	Control	Value	Control	Spec
Scale	Scale		Imum	Maximum	
	Scale	Scale	Scele Min	Scale Minimum	Scale Minimum Maxim

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Operation

STRESS RELIEVE: 1200 FOR 1HR

Certification Statement

THIS MATERIAL HAS BEEN STRESSED PER CUSTOMER REQUIREMENTS

Certified By: Chris Yeppez Title: General Manage Date: 11/21/2017

As work is accepted subject to the following conditions (adapted by the Motel Treating Insidual) : It is generally recognized that evan after all adaptes that with yours of training, there remeles hexards in the sum of the darge and second to compensate in the sum of the darges, except by written agreement. Warranty will be assumed only when made is writing and signed by their you and us. In such event, a higher charge will be made in writing yours of training, there remeles hexards in the sum of the darges in the sum of the darges in the sum of the darges and second to compensate in the sum of the darges, except by written agreement. Warranty will be assumed only when made is writing and signed by the you and us. In such event, a higher charge will be made for our services. No claims for the darges in writing and a signed by the you and us. In such event, a higher charge will be made for our services. No claims for the darges here well and an affect by the you and us. In such event, a higher charge will be made for our services. No claims for darget by writing agreement, as above, nor in any case for volver assumption of the analysis. (Brait, and the gree are applied to the factor behaviored for stimuting as a start for and under the and case or been material with deliable instructions. Fakine by a customer to indicate plate, and construct or materials. (Brait, and Case or Steel, to be traised, and darget to be constal, during the part darget to be and to be any factor processing, sampling or subjects were heabeen done on any additional exception of the any other proceeding or any darget and the second to a darget by the second claims and the darget to be fore additional any fully processing, assumption work heades and write darget and the second addition of the materials with default which is any other processing assumption work heades and write any other proceeding the work the proceeding for the base of the second addition of the materials anow andition addition which additions are presented to a Mathemathe azards in in writing duty approved by us.

Republic Heat Treat

6902 N Main St, Housion, TX, 77022-3512

INDEPENDENCE CONTRACT DRILLING P.O. NO .: PO00116446 DATE: FEBRUARY 23, 2018 FILE NO .: CSR / SPECO-81069



Procedure # RT-3

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Radiographic Specialists, Inc.

41 1 0 Mohawk Houston, Tx 77093

				Pho	ne		1-449-1634	40001	•	x: 281-44	9-1640				
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INDEPENDENCE CONTRACT DRILLING P.O. NO.: PO00116446 DATE: FEBRUARY 23, 2018 FILE NO.: CSR / SPECO-81069

RADIOGRAPHIC SPECIALISTS, INC.

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Ph. 281-449-1634

11/20/17

DATE: <u>11/20/17</u> P. O. NO. <u>7815</u> JOB NO.

DEL SLIP

4110 MOHAWK HOUSTON TX 77093

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Fax 281-449-1640

TO:	COPPER STATES

LOCATION: R.S.L

MAGNETIC PARTICLE INSPECTION REPORT

ITEM NO.	DESCRIPTION	·····	REJ	ACC	COMMENTS
4	3" CK FTG. W/4-1/16" 10M PLANGE H1263 TH	P11 (41266		x	
	5 CK PTC. WITHING TOWE PERIODE III205 III	KG (11200		<u>^</u>	
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Materials	Used 1 CAN 850A				
APPLICABL	E SPECIFICATION SE709		``````````````````````````````````````		
ACCEPTANC	E STANDARD ASME SEC VIII APP6 PAR	.6.4	·		
SCOPE OF	EXAMINATION 100% OF WELDED ARE	Α			
PROCEDURE	NO. MT-5 Rev. 14	•			
METHOD: W	ETX DRY T USED CONTOUR PROBE	FLUORE	SCEN	r	
INSTRUMEN MODEL DAI	00 S/N.7178				
) #LIFT 6.5 AMP.	LIGHT	METE	N: R•	
CURRENT :	ACXDC	PREPARE	D BA	гн <u>С</u>	IRCLE SAFE
		BATCH			
TECHNICIA	N TIM BRADLEY	LEVE	L <u>III</u>		
CUSTOMER_					
TIME LEFT	RST: TT	ME ARRIVI	ED RS	۹۳۰	

(281)449-163	4 4110 Moh	awk Houston,Texas 77093	Fi	ax (281)449-1640
To: COPPER STATE RU	BBER	Date: 11-20-17		
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H1266		214	206	214

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14141 S. Wayside Drive Houston, Texas 77048

Phone 713-644-1491 Fax 713-644-9830 www.copperstaterubber.com sales@copperstaterubber.com

FIELD TEST PROCEDURES FOR USED COPPER STATE RUBBER CHOKE/KILL AND SUPER CHOKE/KILL HOSE

VISUAL INSPECTION ASSEMBLIES WITHOUT STAINLESS STEEL PROTECTIVE ARMOR

- 1. ARRANGE HOSE SO THAT IT CAN BE OBSERVED FROM ALL ANGLES.
- 2. CONDUCT THE EXAMINATION FOR EXTERNAL DAMAGE TO THE COVER, END STRUCTURE, AND TERMINATING CONNECTORS.
- 3. IF THE COVER HAS GOUGING OR TEARS FROM NORMAL ABRASION, THIS CAN BE REPAIRED BY UTILIZING A RUBBER REPAIR KIT. <u>THE SOLE</u> <u>PURPOSE OF THE COVER IS TO PROTECT THE</u> <u>INTERNAL REINFORCEMENT WIRES THAT HOLD THE</u> <u>PRESSURE</u>.
- 4. IF NO INTERNAL WIRES ARE EXPOSED, REPAIR THE COVER DAMAGE BEFORE IT BECOMES WORSE AND EXPOSES THE INTERNAL REINFORCEMENT WIRES TO THE EFFECTS OF THE ELEMENTS. FULL PRESSURE INTEGRITY REMAINS.
- 5. IF ANY OF THE INTERNAL REINFORCEMENT WIRES ARE EXPOSED, CHECK FOR ANY TYPE OF RUST/DETERIORATION OR BREAKS. IF THE WIRES ARE NOT DAMAGED, CLEAN THE AREA AND REPAIR WITH RUBBER REPAIR KIT. FULL PRESSURE INTEGRITY REMAINS.
- 6. IF ANY OF THE INTERNAL REINFORCEMENT WIRES ARE DAMAGED, THE HOSE SHOULD BE REMOVED FROM SERVICE IMMEDIATELY AND CONSIDERED UNSAFE FOR FURTHER SERVICE.

INDEPENDENCE CONTRACT DRILLING P.O. NO.: PO00116446 DATE: FEBRUARY 23, 2018 FILE NO.: CSR / SPECO-81069

Marine, Industrial, and Oilfield Hose Made in the U.S.A.

VISUAL INSPECTION ASSEMBLIES WITH STAINLESS STEEL PROTECTIVE ARMOR

- 1. FOLLOW STEPS 1 AND 2 FOR ASSEMBLIES WITHOUT STAINLESS STEEL PROTECTIVE ARMOR.
- 2. IF THE OUTER STL/ST PROTECTIVE ARMOR HAS BEEN BROKEN, EXAMINE THE RUBBER COVER FOR GOUGES OR TEARS FROM NORMAL ABRASION. THEN FOLLOW STEP 4 FOR ASSEMBLIES WITHOUT STAINLESS STEEL PROTECTIVE ARMOR.
- 3. SECURE LOOSE ENDS OF PROTECTIVE ARMOR TO PROTECT AGAINST ADDITIONAL GOUGES OR TEARS TO RUBBER COVER.
- 4. HOSE ASSEMBLY SHOULD BE RETURNED TO COPPER STATE RUBBER, PHOENIX, ARIZONA USA AS SOON AS POSSIBLE FOR REPAIRS TO PROTECTIVE ARMOR.
- 5. IF ANY OF THE INTERNAL REINFORCEMENT WIRES ARE EXPOSED, CHECK FOR ANY TYPE OF RUST/DETERIORATION OR BREAKS. IF THE WIRES ARE NOT DAMAGED, CLEAN THE AREA AND REPAIR WITH RUBBER REPAIR KIT. FULL PRESSURE INTEGRITY REMAINS.
- 6. IF ANY OF THE INTERNAL REINFORCEMENT WIRES ARE DAMAGED, THE HOSE SHOULD BE REMOVED FROM SERVICE IMMEDIATELY AND CONSIDERED UNSAFE FOR FURTHER SERVICE.

CSR RECOMMENDS VISUAL INSPECTION WHENEVER POSSIBLE, ON A DAILY BASIS.

HYDROSTATIC TEST

1. TEST HOSE TO 1-1/4 TIMES MAX. ALLOWABLE WORKING PRESSURE WITH WATER, OIL, OR MUD BEING SURE ALL AIR HAS BEEN BLED OFF. HOLD FOR 15 MINUTES AFTER PRESSURE HAS STABILIZED

CSR RECOMMENDS HYDROSTATIC TEST AT APPROXIMATELY 6 MONTH INTERVALS ON RIG AND HOSE BE RETURNED TO OEM FOR INSPECTION AND RECERTIFICATION AT 5 YEARS FROM MANUFACTURE

F;\WPDOCS\MSTR\TESPROS

COPPER STATE RUBBER

14141 S WAYSIDE DR. HOUSTON, TEXAS 77048 TEL: (713) 644-1491 FAX: (713) 644-9830

WARRANTY TERMS AND CONDITONS

COPPER STATE RUBBER DRILLING HOSES ARE GUARANTEED FOR THE PERIOD OF 12 MONTHS (FROM DATE OF FIRST SERVICE) TO BE FREE FROM DEFECTS IN MATERIALS AND/OR WORKMANSHIP.

IN ORDER TO ESTABLISH A VALID WARRANTY CLAIM, CUSTOMER MUST GIVE NOTICE TO COPPER STATE RUBBER WITHIN 10 DAYS AFTER DISCOVERING THE DEFECT. WE WILL ADVISE IF HOSE SHOULD BE RETURNED TO FACTORY FOR INSPECTION (FREIGHT PREPAID). IF COPPER STATE DETERMINES HOSE TO BE DEFECTIVE, COPPER STATE WILL REPAIR OR REPLACE (AT ITS OPTION) THE HOSE IN QUESTION. ALL REPAIRS AND REPLACEMENTS WILL BE F.O.B. COPPER STATE RUBBER'S PLANT.

REMOVAL OR WELDING OF END FITTINGS WILL VOID WARRANTY





INDEPENDENCE CONTRACT DRILLING P.O. NO.: PO00116446 DATE: FEBRUARY 23, 2018 FILE NO.: CSR / SPECO-81069 **10M BOP Stack**





INDEPENDENCE CONTRACT DRILLING 11601 N. GALAYDA STREET HOUSTON, TX. 77086

PURCHASE ORDER NO.: PO00116446

DATE: February 23, 2018

COPPER STATE RUBBER/SPECIALTIES COMPANY FILE: CSR / SPECO- 81069

TAB 1

 I. CERTIFICATE OF REGISTRATION ISO 9001:2015 APIQR REGISTRATION NO.: 3042
II. API CERTIFICATE OF ACCREDITATION FOR Q1 AND SPEC. 16C CERTIFICATE NO.:16C-0383

COPPER STATE RUBBER CHOKE / KILL HOSE, API SPEC. 16C MONOGRAMMED, FSL 3, TEMP RANGE B/P, 10,000 PSI WP, 15,000 PSI TEST, FIRE RESISTANT, WITH BUTTWELD 4-1/16'' 10K API FLANGE WITH S.S. LINED BX-155 RING GROOVE EACH END. H2S SUITED. 1 EA. 3'' ID X 75 FT. S/N- 33851

TAB 2

- I. CSR CERTIFICATE OF COMPLIANCE
- II. COMPLETE ASSEMBLIES VISUAL INSPECTION/HYDROSTATIC TEST REPORTS
- III. PRESSURE GAUGE CALIBRATION CERTIFICATE, S/N.: 111291-2
- IV. CHART RECORDER CALIBRATION CERTIFICATE, S/N.: 07459

TAB 3

- I. METAL COMPONENT REPORTS
 - A. INSERTS:
 - 1. BRENDELL 14C1, ENCORE METALS HT-418595
 - B. 4-1/16" 10K API MAWP 6A FLANGE
 - 1. MACHINE SPECIALTY & MFG. HT-V4760

TAB 4

I. WELDING PROCEDURES AND QUALIFICATION RECORDS A. COPPER STATE RUBBER WPS/PQR NOS.: 911171-1 AND 911171-2, REV. 5 FOR INSERTS TO TERMINATING CONNECTOR WELDMENTS

TAB 5

- I. NDE REPORTS FOR END FITTINGS TO INSERT WELDMENTS A. STRESS RELIEVING
 - 1. **REPUBLIC HEAT TREAT** CERT. ID NO.: 38120-1

P.O. NO.: 7494

- B. RADIOGRAPHIC INSPECTION
 - 1. RADIOGRAPHIC SPECIALISTS

P.O. NO.: 7815

TAB 6

- I. FIELD TEST PROCEDURES FOR USED COPPER STATE RUBBER ROTARY AND VIBRATOR HOSE ASSEMBLIES
- II. COPPER STATE RUBBER 12 MONTH WARRANTY TERMS AND CONDITION



Certificate of Registration

APIQR[®] REGISTRATION NUMBER 3042 This certifies that the quality management system of

> COPPER STATE RUBBER, INC. 750 S. 59th Avenue Phoenix, AZ

has been assessed by the American Petroleum Institute Quality Registrar (APIQR[®]) and found it to be in conformance with the following standard:

ISO 9001:2015

The scope of this registration and the approved quality management system applies to the

Design and Manufacture of Oilfield, Marine and Other Industrial Hoses

APIQR[®] approves the organization's justification for excluding: No Exclusions Identified as Applicable

Effective Date: Expiration Date: Registered Since: MARCH 28, 2017 APRIL 21, 2019 APRIL 21, 2016

Vice President, API Global Industry Services

Accredited by Member of the International Accreditation Forum Multilateral Recognition Arrangement for Quality Manacement Systems



This certificate is valid for the period specified herein. The registered organization must continually meet all requirements of APIQR's Registration Program and the requirements of the Registration Agreement. Registration is maintained and regularly monitored through annual full system andas: Further clarifications regarding the scope of this certificate and the applicability of ISO 9001 standard requirements may be obtained by consulting the registered organization. This certificate has been leaved from APIQR offices located at 1220 L Street, N.W. Washington, D.C. 2000;44070, U.S.A., it is the property of APIQR, and must be returned upon request. To verify the antihenticity of this certificate, so to way and north (Commonic Leiter).





Certificate of Authority to use the Official API Monogram License Number: 16C-0383 ORIGINAL

The American Petroleum Institute hereby grants to

COPPER STATE RUBBER, INC. 750 S. 59th Avenue Phoenix, AZ

the right to use the Official API Monogram[®] on manufactured products under the conditions in the official publications of the American Petroleum Institute entitled API Spec Q1[®] and **API-16C** and in accordance with the provisions of the License Agreement.

In all cases where the Official API Monogram is applied, the API Monogram shall be used in conjunction with this certificate number: **16C-0383**

The American Petroleum Institute reserves the right to revoke this authorization to use the Official API Monogram for any reason satisfactory to the Board of Directors of the American Petroleum Institute.

The scope of this license includes the following: Flexible Choke and Kill Lines atFSL 0, FSL 1, FSL 2, FSL 3

QMS Exclusions: No Exclusions Identified as Applicable

Effective Date: MARCH 28, 2017 Expiration Date: APRIL 21, 2019

To verify the authenticity of this license, go to www.api.org/compositelist.



Phone 713-644-1491 Fax 713-644-9830 www.copperstaterubber.com sales@copperstaterubber.com

February 23, 2018

Specialties Company

copper state rubber

Independence Contracting Drilling 11601 N. Galayda St. Houston, Texas 77086

Subject: Purchase Order No.: PO00116446 Date: February 23, 2018 Specialties Company File No.: CSR / SPECO-81069

Equipment: Copper State Rubber Choke/Kill Hose Assembly, 10KSI MAWP X 15KS1 T/P, API 16C FSL3, Fire Resistant Cover, Complete 4-1/16" 10KSI MAWP Flange With BX155 SS Lined Ring Groove Each End. H2S Suited. 1EA: 3" ID X 75Ft. S/N-33851

CERTIFICATE OF COMPLIANCE

This is to certify the above referenced equipment meets or exceeds the following requirements and were manufactured from same material specification and manufacturing methods as prototype assemblies for referenced specifications.

- 1. COMPLETE HOSE ASSEMBLY
 - A. API Certificate of Accreditation for Spec: Q1 (Quality Programs) and Spec.: 16C
 - 1. Copper State Rubber, Inc. Certificate No.: 16C-0383
 - B. CSR Specification No.: 090-1915C

II. PHYSICAL/CHEMICAL PROPERTIES OF METAL COMPONENTS

- A. API Spec. 6A, latest edition
- B. API Spec. 16A, latest edition
- C. NACE Standard MR0175, latest edition

III. WELDMENTS/NDE REQUIREMENTS

- A. Section IX, ASME Boiler & Pressure Code, 1986 Ed., 1987 Add.
- B. CSR/Specialties Company WPS/PQR Nos.: 911171-1, and 911171-2, Rev. 05 dated June 2005

Marine, Industrial, and Oilfield Hose Made in the U.S.A.

III. WELDMENTS/NDE REQUIREMENTS (continued) C. API Spec. 6A, latest edition D. API Spec. 16A, latest edition

Sincerely,

us

Joe Leeper, Technical Department



Visual Inspection / Hydrostatic Test Report

Manufacturer	Copper State Rubber Inc.	
Hose Type	Choke and Kill	
Pressure Rating	10,000 PSI MAWP X 15,000 PSI T/P	
Spec Number	090-1915C-48	
FSL Rating	FSL 3	

Serial Number	33851	
Size ID	3"	
Length	75'	
Date	December 9, 2017	
Shop Order Number	31162	

Connections Description: 4 1/16" 10K API FLANGE WITH SS INLAID BX-155 RING GROOVE EACH END

Traceability of Terminating Connectors

	Insert	Male	Nut	Female	Flanges	Hubs	Other
Connector 1	14C1				V4760		CSR-H1263
Connector 2	14C1				V4760		CSR-H1265

Comments

Calibrated Devices

Pressure Recorder	07459	Calibration Date	1/23/2017
Pressure Gauge	111291-2	Calibration Date	1/23/2017

*This report signifies that the product has been visually inspected for defects in the interior tube, recess, gasket, cover and branding and all have been found to be conforming.

Comments

Hydrostatic Testing Requirements

Length after test

60 Min @ 15,000 psi (-0/+500 psi)

75' OAL

til Spider

Witness By: Supervisor

INDEPENDENCE CONTRACT DRILLING P.O. NO.: PO00116446 DATE: FEBRUARY 23, 2018 FILE NO.: CSR / SPECO-81069

QA-28 REV-0 10/15





TECHNICAL SERVICES 2400 W Southern Avenue # 104 Tempe, Arizono 85282 480.921 1021

Certificate of Calibration

Certificate # 1702331

issued to: Copper State Rubber, Inc. 750 South 59th Avenue oprova. Phoenix, Arizona 85043 2 AS II

Equipment Tested

Precisi

Description : McDaniel Pressure Gauge	Calibration Date : January 23, 2017 Calibration Due : January 23, 2018		
Model # : None Visible	Identification # : 111291-2		
Range: 0-30000 PSIG	Serial # : None Visible		
Accuracy : .50 % of Full Scale			
Physical Condition as Received : Good	Service Performed : Calibration to Manufacturers Specifications and ASME B40.100-2013		

Measurement Data

% of Span	Gauge Reading	Actual Pressure	Reading Error	Maximum Allowable
20 %	6000	6054.9	54.9	150.0
40 %	12000	11995.2	-4.8	150.0
60 %	18000	17976.6	-23.4	150.0
80 %	24000	23965.8	-34.2	150.0
100 %	30000	29943.9	-56.1	150.0

Ambient Temperature : 19.5° C

Relative Humidity : Between 20 & 60%

Comments :

Uncertainty of Measurement is +/- (19 + 0.6R) psi Measurement uncertainties stated represent an expanded uncertainty at approximately the 95% confidence level and a coverage factor k=2 The results obtained relate only to the term calibration Precision Technical Services makes Pass/Fail statements of compliance by comparing the calibration data against the teleramon(s) without factoring in the measurement i It is your responsibility to determine if the uncertainty adversely affect your instrument(s) or process(es). Other decision rules may be employed upon request

Standards Used

Procedures : PTS Procedure Manual Section SCP-01 High Pressure Gauge

Standard :

PTS 123 Sens otec Pressure System Cert# 1-132212 Due: 12 Jan 2018

K Canida

Calibration Performed By

The standards and calibration program at Precision Technical Services complies with the requirements of ANSI/NCSL 2540.3-2008, ANSI/ISO/IEC 17025:2005 and also to PTS Quality Manual, Rev 12, dated September 1, 2014 and where applicable to ISO 9001:2008. Standards used in this calibration are traceable to the International System of Units (SI) through NJ.S.T. or recognized standard organizations. This Certificate may not be reproduced except in full without the written approval of Precision Technical Services

Page 1 of 1

INDEPENDENCE CONTRACT DRILLING P.O. NO.: PO00116446 DATE: FEBRUARY 23, 2018 FILE NO .: CSR / SPECO-81069



TECHNICAL SERVICES 2400 W Southern Avenue # 104 Tempe, Artzono 85282 460.921.1921		LABORATORY ACCREDITATION BUREAU . domains . Addressing dates . Addressing dates . Addressing dates . Addressing . Addressi	
Certificate of Certificate #		750 South	ate Rubber, Inc. 59 th Avenue e ^{9^{870t}% Arizona 85043 e⁸⁰¹¹}
Equipment Tested			
Description : TechCal Temperature Gauge		Calibration Date : January 23, 2017 Due Date : January 23, 2018	
Model#: Chart Recorder		Identification #: 07459	
Range : 0-150° F		Serial # : 07459	
Accuracy : 1.5 F	1	,,,,,,	
Physical Condition as Received : Good		Service Performed : Calibration to Manufacturers Specifications and ASME B40.200 - 2008 (R2013)	
Measurement Data	Actual	Unit Under Test	
	50.06	59	
	100.11	100	
	150.09	150	
Ambient Temperature :	19.5°C	Relative Humidit	y : Between 20 & 60%
Comments :	AS RETURNED - Gauge	Adjusted	
Measurement unce	intainties stated represent an expanded uncertainty		a coverage factor k=2
	ss/Fall statements of compliance by comparing the		
it is your responsibility to de	termina if the uncertainty adversely affect your ins	enmantile) of processiles). Unter decision rules n	nay de employed upon request
Standards Used			
Procedures :		Standard : PTS 111 Ther	moWarks Reference Thermometer
PTS Procedure Manual Section : S	CP 25 – Thermometer –	Certificate # 22	2834 Due: 02 Sep 2017 e Temperature Wel
Analog, Digitai, Glass			538 Due: 01 Jun 2017
Stendards used in 1019 celibri	n at Precision Technical Services compiles PTS Quality Manual, Rev 12; deted Septer ation are traceable to the International Syst e may not be reproduced except in full with Page	with the requirements of ANSI/NCSL 254 niter 1, 2014 and where applicable to ISO tern of Units (57) through N.I.S.T. or recogn yout the written approval of Precision Tech 1 of 2	1294 Slandard omanizations
			NO.: PO00116446

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encoremetals

CERTIFICATE OF TEST

Page 01 of 02

Certification Date 14-JUL-2014

1591 CUSTOMER		BER	ENCORE MET 789 NORTH NORTH SALI	ALS US 400 WEST LAKE UT	Invoic S16	Invoice Number S160494		
SOLD TO:	BRENDEL	L MANUFACTU	RING INCSHIP	TO: BR	ENDELL MA	NUFACTURIN	G INC.	
	580 NOR' NORTH SJ	TH 400 WEST ALT LAKE UT	Г 84054	58 NC	0 NORTH 4 ORTH SALT	00 WEST LAKE UT 8	4054	
	X 20' R	130 HR NORM L	4 Q&T BAR AP ITEM: 505	PI 6A PSL3 L 824	NACE MR01 ine Total	75 : 19.5 FT		
Specific NACE MR- AMS H 68 ASTM A37	ations: 01-75 75 A 0 11	AI AS AS	PI 6A PSL 3 STM A29 12 STM A304 04		EN 102 ASTM A	04 3.1 322 07		
			CHEMICAL	ANALYSTS				
C 0.313	MN 0.56	SI 0.25	P 0.014	S 0.003				
AL 0.025	CU 0.28	SN 0.014	TI 0.0027	V 0.027	NB 0.003	AS 0.006	CA 0.0015	
SB 0.001	CO 0.011	PB 0.002						
RCPT. R	120906			COUNTRY O	F ORIGIN	: ITALY		
			MECHANIC					
DESCRIPT TEST PC/	ION QTC	YLD STR PSI 85862.0	ULT TEN PSI 104572.0	%ELONG IN 02 IN 22.0	%RED IN AREA 60.0	HARDNESS BHN 229		
		YLD STR	ULT TEN	%ELONG	%RED IN AREA	HARDNESS BHN 229		

The above data were transcribed from the manufacturer's Certificate of Test after verification for completeness and specification requirements of the information on the certificate. All test results remain on file subject to examination. Material did not come in contact with mercury while in our possession. DIANA JOHNSON

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We hereby certify that the material covered by this report will meet the applicable requirements described herein, including any specification forming a part of the description.

The willful recording of false, fictitious, or fraudulent statements in connection with test results may be punishable as a felony under federal statutes.

INSERT MATERIAL INDEPENDENCE CONTRACT DRILLING P.O. NO.: PO00116446 DATE: FEBRUARY 23, 2018 FILE NO.: CSR / SPECO-81069

encoremetals

CERTIFICATE OF TEST

Page 02 of 02

Certification Date 14-JUL-2014

CUSTOMER ORDER NUMBER 15916 CUSTOMER PART NUMBER SERIAL#G87			78	9 NORT		US WEST E UT		Inv	voice Number S160494
SOLD TO:	BREND	ell manuf	ACTURING	INCS	IIP TO:	BRE	NDELL MAN	JFACTU	JRING INC.
	580 NO NORTH	ORTH 400 SALT LAK	WEST E UT 8	4054		580 NOR	NORTH 40 TH SALT L	0 WESI AKE U	T 84054
Descript: 6-1/2 RD HEAT: 4: GRAIN S:	X 20' L8595	R/L	I	TEM: 5	05824	Li	ACE MR017! ne Total:	19.5	
CHARPY MATERIAI NO WELD THERMAL NORMALIZ QUENCHEI	-75 F IS FF REPAIF TREATM CED 165 1616	LONG EE FROM PERFORM	33.0 MERCURY ED ON MA X 353' TER X 35	36.0 CONTAM TERIAL	36.0 	35.0	* SHEAR	LAT EXPN	DESCRIPTION 10mm x 10mm

The above data were transcribed from the manufacturer's Certificate of Test after verification for completeness and specification requirements of the information on the certificate. All test results remain on file subject to examination.

We hereby certify that the material covered by this report will meet the applicable requirements

described herein, including any specification forming a part of the description.

Material did not come in contact with mercury while in our possession. DIANA JOHNSON

Navaj-

The willful recording of false, fictitious, or fraudulent statements in connection with test results may be punishable as a felony under federal statutes. TECHNICAL MANAGER

	Š	MACHIN 215 ROUS YOUNGSV Phone: 337 Fax: 337-83	SEAU ILLE, 837-00	ROAD LA 70592		3., INC.		Material Test Ro Page					Page : 1 of 1			
OLD TO:	SPECIAL RUBBER 14141 S V HOUSTO	INC. VAYSIDE	DRIVE		E			SHIP TO: SPECIALTI RUBBER IN 14141 S W/ HOUSTON				R INC. WAYSIDE		STATE		
DATE	SALES	ORDER #		CUST P	.0.#			TAG NU	MBER			ITEM	TAG			
11/17/2016	0260385	5		110816V	VL											
EM # QTY	ITEM D	ESCRIPTIC)N						HEAT	CODE		HEAT	NUMBER		STARTING	
<u>c si</u> .32 .22		.011	<u>Р</u> .013	Cr .98	Cu	Al	Ni .065	CHEMIC/ Mo .17	AL ANAL V .008	<u>YSIS</u>		99999999999999999999999999999999999999				
.32 .22	.51	······	.013	.98		AI	<u>Ni</u> .065	.17	V.							
.32 .22		······	.013 on R	.98 REDUCTION	Hardi	ness	<u>Ni</u> .065	.17	.008							
.32 .22	.51	.011	.013 on R	.98	Hardi	ness hejl	<u>Ni</u> .065	.17	.008							
.32 .22 Yield PSI	.51 Tensile PSI	.011 Elongati	.013 on R	.98 REDUCTION	Hardi Brin	ness hejl	<u>Ni</u> .065	Mo .17	.008	RTIES						
.32 .22 Yield PSi	.51 Tensile PSI	.011 Elongati	.013 on R	.98 REDUCTION DF AREA % 70.24	Hardi Brin	ness hejl	<u>Ni</u> .065	Mo .17 HYSICAL	.008	RTIES		AVG		%SH	IEAR	LAT EXP

SUPPLEMENTAL INFORMATION

NORMALIZE@1680F FOR 180MIN AUSTENITIZE@1600F FOR 180MIN TEMPER@1260F FOR 240MIN QTC: SACRIFICIAL PIECE CHARPY: 10 X 10 X 55 MELT PRACTICE: EAF-LRF-VD-CCM W/ EMS

WE HEREBY CERTIFY THAT ALL TEST RESULTS CONTAINED HEREIN ARE CORRECT AND TRUE AS CONTAINED IN THE RECORDS OF THE COMPANY. ALL TEMPERATURES ARE IN FAHRENHEIT AND IMPACT TESTING IN FT LBS MANUFACTURED IN USA. EN10204 3.1

DEPARTMENT

FLANGE MATERIAL INDEPENDENCE CONTRACT DRILLING P.O. NO.: PO00116446 DATE: FEBRUARY 23, 2018 FILE NO.: CSR / SPECO-81069





6401 McGrew St. Houston, Texas 77087 713-644-1491 713-644-9830 Fax csrhouston@msn.com

WELDING PROCEDURE SPECIFICATION, WPS NO: <u>911171-1</u> SECTION IX, ASME BOILER 7 PRESSURE VESSEL CODE, 1989 EDITION, 1990 ADDENDA

COMPANY: COPPER STATE RUBBER, INC. SUBSIDIARY OF SPECIALTIES CO.

BY: <u>KEN FORDYCE</u> DATE: <u>10/07/91</u> REVISED BY: <u>ROGER PEACE</u> TECHNICAL MANAGER COPPER STATE RUBBER

REVISION NO: 5 DATE: 5-31-2005

SUPPORTING PQR(s): 911171-2

ASU: reviewed Na.

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INDEPENDENCE CONTRACT DRILLING P.O. NO.: PO00116446 DATE: FEBRUARY 23, 2018 FILE NO.: CSR / SPECO-81069

Marine, Industrial, and Oilfield Hose Made in the U.S.A.

· \$	SOUTHWESTERN LABORATORIES
.	Materials, environmental and geotechnical engineering, nondestructive, metallurgical and analytical services 222 Cavelcade Sc. • RO. Box 8768. Houston, Texas 77249 • 713/692-9151
REVIEWS: es indicated b ABS Latter date	
DES 2 0 ISS	Company: Copper State Rubber, Inc. subsidiary of Specialties Co.
Seane	By Ken Fordyce Date: 10/07/91 Revised By: ROGER PEACE Date: 7-16-93
HOUSTON	Surporting POR(s): 911171-2 TECHNICAL MANAGER COPPER STATE RUBBER
0	WELDING PROCESS(es) Auto: Semi-auto: <u>CMAW-S</u> Machine: Manual: <u>SMAWPPROVED</u>
RAMBE CIM	JOINTS (QW-402) ABS requirements and does not
TO 8 THE FUL	Joint Design: The joint may be changed from Include lists not required by that shown to any other type (e.g. double-V, ABS. See connects in ABS
HOLE DUPACTS	circle dauble l circle dauble I etc.)
	which is consistent with design and applica- tion requirements, including those of the
DupAct 5	construction code; changes in the design (root gap, use of retainers, etc.) beyond that permitted in this WPS must be specified 1/16 in 0 1 1/16 in 0
MDT-30° C	that permitted in this WPS must be specified
Acceptable	Backing: Use backing or backgouging w/SMAW. GUBHUT DEG
FOR 1725 SERVECE	Backing Type: weld metal or base metal
NACE MROITS	Retainers: metallic/nonmetallic may be used Single=V-Groove
ASMETX	BASE METALS (QN-403)
DAIN (ALOU) DETEC	Specification: AISI 4130 API 6A 75K material designation, 207-235 BHN
DEEC	Groove Thickness Range: 3/16"-8" f/nonimpacts Fillet Thickness Range: all For complement with the
Hund	Pipe Groove Diameter Range: all Pipe Fillet Diameter Range: APhothe parts of the
CA (************************************	Network Network Wother Base Metal Thickness Limitations: Directorate's "AGTS.
	(1) 1.65" maximum for any single weld pass thicker than 1/2." REGULATIONS AND
463649	(2) 5/8" minimum to 2.5" maximum for impacts EBOMISIONS FOR THE PETROLEUM INDUST
	FILLER METALS (QW-404)
	AWS Class No.: <u>Only A-No. 11 low hydrogen electrodes (E10018-D2, Exoc15-D2,</u> <u>5 Exoc16-D2) are qualified for impacts; only ER80S-D2 is qualified for</u>
	impacts.
And the second	
For compliance with	Size: 0.035"-0.045" diameter for GMAW-S; 1/8"-1/4" diameter for SMAW Groove Weld Size/Deposit Range: 0.14" max. for GMAW-S; 2.36" max. for SMAW
INCOVALL BY THE	impacts: 7.86" max for SMAN ponimpacts
PORISTRUCTION AND SURVI	AFillet Size Range: any
	Other: The maximum SMAW bead size qualified for impacts is 3/16" thick x
REGULATIONS, 197	ULTER: The maximum SMAW pead size dualified for impacts is 1/16" toick y
REGULATIONS, 197	Uther: The maximum SMAW bead size qualified for impacts is $3/16^{\circ}$ thick x 1/2" wide x 6" long. See foot note to Table 1. Solid bare wire must be used for GMAW. Supplementary filler metal or powder not permitted.

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Our letters and repons are for the exclusive use of the client to whom they are addressed. The use of our name must receive our prior written approval. Our letters and reports apply only to the sample tested and or inspected, and are not necessarily indicative of the qualities of apparently identical or similar products.

BOUTHWESTERN LABORATORIES

WPS No.: <u>911171-1</u> Page 2 of 2

POSITIONS (QW-405)	WELD & BASE METAL TEMPERATURES (QN-406)
Groove: <u>flat for impacts</u>	Preheat: 200°F for T to 1"; 300°F over 1"
Fillet: <u>flat for impacts</u>	Interpass: 600°F for impacts
Vertical Progression: <u>up or down</u>	Maintenance: none
POSIWEID HEAT TREATMENT (QH-407) Temperature Range: 1200°F-1225°F or 20°F-30°F below base metal tempering temperature.	Time Range: <u>1 hour per inch of section</u> thickness

SHIELDING, BACKING, TRAILING GAS (QH-408)

		/	
GM7W-S	Gas Type/Mix	Percent Mixture	Flow Rate (cfh)
Shielding:	Argon/002*	75% Ar/25%002*	30 Minimum
Backing:	none*	none	none
Trailing:	none	none	none

ELECTRICAL CHARACTERISTICS (QH-409)

Current & Polarity: <u>DC reverse (DCEP)</u> Heat Input: <u>See Table 1 note.</u> Voltage: <u>See Table 1.</u> Transfer Mode:: <u>short-circuiting for GPAW-S</u>

TECHNIQUE (QH-410)

String or Weave: string only for impacts*

Cleaning: wire brush, chip, grind, or other suitable means to remove slag, rust, scale, grease, or other harmful materials from the weld fusion zone Method of Back Gouging: mechanical or thermal cutting (w/specified preheat) Tube to Work Distance: 1/4"-1/2" Passes per Side: multiple only for impacts Electrodes: single only for impacts 'Péening: may be used on intermediate GMAW Gas Cup Size: Nos. 3-8 _____ passes to reduce shrinkage stresses

TABLE 1

ESSENTTAL & NONESSENTIAL PROCEDURE VARIABLES

Pass		Filler I	Metal	Qui	rent		Travel		
No.	Process	Class	Dia.	Type	Amps.	<u>Volts</u>	Direction	Speed	
1	GMAW-S	ER805-D2	0.035	DCEP	60-130	15-20	Flat	7.0 ipm	
Any	SMAW	E10018-D2	1/8	DCEP	110-140	18-25	Flat	7.0 ipm	

<u>HOTE</u>: The maximum bead size that may be deposited for impacts in any pass is 3/16" thick x 1/2" wide x 6" long with 1/8" diameter electrodes.

This WPS was documented to code requirements by <u>Kold Voldayd</u> of SwL as Report No. <u>911171-1</u>. It gives the values and/or limits of essential, supplementary essential, and nonessential welding variables permitted by Section IX of the ASME Code as a result of successful procedure qualification. The essential and supplementary essential variables may be changed within the limitations of ASME Section IX, QW-250 without requalification. Changes outside those limits require requalification of the altered procedure.

'a Date: 10/07/91 Pile No.: 12-8075-00 Reviewed By:

SWL

SOUTHWESTERN LABORATORIES

Materials, environmental and geotechnical engineering, nondestructive, metallurgical and analytical services 222 Cavalcade St. • PD. Box 0768, Houston, Texas 77249 • 713/692-6151

Prodecure Qualification Record, POR No. <u>911171-2</u> Section IX, ASME Boiler & Pressure Vessel Code, 1989 Edition, 1990 Addenda

Date: 10/07/91 WPS No. (s): 911171-1

WELDING PROCESS(es)

Auto: _____ Semi-auto: <u>GMAW-S</u> Machine: _____ Manual: <u>SMAW</u>

JOINTS (QW-402)	HASE METALS (QW-403)
	Material Spec.: AISI 4130
Single-V-Groove Weld with No Backing	Type & Grade: API 75k designation
Root Gap = $1/8"$	P-No.: to P-No.:
Root Face = $1/16"$	Thickness of Test Coupon: 1-1/2"
Groove Angle = 70° 1st 3/4"	Diameter of Test Coupon: 10" OD
Groove Angle = 33° 2nd $3/4''$	Other: normalized, quenched, tempered
	to 228 BHN (Heat No. A2769)
Joint Design	

FILLER METALS (QW-404) Spec Class. F-No. A-No. Dia. CMAW: <u>5.28 ER80S-D2 6 11 0.035'</u> SMAW: <u>5.5 E10018-D2 4 11 1/8"</u>

POSITION (QW-405)

Temperature: 1230°F

<u>0.035</u>" Position of Joint: <u>1G Rolled</u> 1/8" Progression of Weld See Table 1.

POSTWELD HEAT 'IREALMENT (CW-4(17)

2-1/2 hours

PREHEAT TIMP	ERATURE	(QW-406)	
Preheat:	300°F	minimum	
Interpass:	500°F	maximum	
Maintenance:			

ELECTRICAL (QW-409)
Voltage: See Table 1.
Current: See Table 1.
Mode of Transfer: Short Circuiting
Heat Input: See Table 1 note.

Time:___ Other:_-

TECHNIQUE (QW-410)	
String or Weave: String & Weave	Machine Oscillation: NA
Passes per Side: multiple	Number of Electrodes: NA
Deposit Thickness 1/8" GMAW; 1-3/8" SM	WA WAY

TABLE 1

ESSENTIAL & NONESSENTIAL PROCEDURE VARIABLES									
Pass				Current		Travel			
<u>No.</u> 1		Class ER80S-D2					Direction Flat	Speed 7.0 ipm	
2-24	SMAW	E10018-D2	1/8	DCEP	110-140	18-25	Flat	7.0 ipm	

<u>NOTE</u>: The maximum volume of weld metal deposited during any single pass was a 3/16" thick x 1/2" wide bead in a 6" length using a 1/8" diameter E10018-D2 electrode.

Our letters and reports are for the exclusive use of the client to whom they are addressed. The use of our name must receive our prior written approval. Our letters and reports apply only to the sample tested and/or inspected, and are not necessarily indicative of the qualities of apparently identical or similar products.

SOUTHWESTERN LABORATORIES

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POR No.: <u>911171-2</u> Page 2 of 3

.

Specimen No.	Width o Dia. (in.)	r Thickness		57022 & Ultima Load (lb.)	Stress	50) Ultimate Failure Location
1	0.748	1.296	0.9694	98,710	101,800	Weld Metal
2	0.748	1.378	1,0307	105,700	102,500	Weld Metal

GUIDED BEND TEST Nos. 57022 & 57103 (OW-160) Type & Figure No. Result

Four Side Bends per QW-462.2

Satisfactory

		TOUG	INESS TEST	" No. 571	03 (01-	170)		
Specim	en Notch	Notch	Test	Impact	Later	al Exp	Section	Size
No.	Location	Туре	Temp(°C)	Values	Mils	Shear t	at Note	n (mu)
1	Weld	Vee	-15	88	60	75	8	10
2	Weld	Vee	-15	29	39	30	8	10
3	Weld	Vee	-15	32	42	30	8	10
			Fusi	on Line (FL)			
1	FL	Vee	-15	52 -	· 37	60	8	10
2	FL	Vee	-15	47	36	60	8	10
3	FL	Vee	-15	56	43	60	8	10
1	FL+2nm	Vee	-15	104	70	75	8	10
2	FL+2mm	Vee	-15	118	74	75	8	10
3	FL+2mm	Vee	-15	102	68	75	8	10
1	FL+5mm	Vee	-15	108	70	75	. 8	10
2	FL+5mm	Vee	-15	106	68	75	8	10
3	FL+5mm	Vee	-15	105	65	75	8	10

	Left Base fected H	e Metal 2		; Survey We		Right	of Weld) Base Me Tected H		
No.	HRB	No.	HRB	No.	HRB	No.	HRB	No.	HRB
1.	97.2	2.	98.7	3.	96.6	6.	98.3	7.	96.7
				4.	96.9				
				5.	96.6				

		Roc	kwell Hart	Iness Sur	vey (at n	udwall)			
		se Metal 2 Heat Affe		We	ld		Base Me fected L		
No.	HRB	No.	HRB	No.	HRB	No.	HRB	No.	HRB
8.	93.6	9.	93.5	10.	92.9	12.	95.8	13.	98.3
				11.	97.7				

		Roc	kwell Har	dness Surv	ey (2mm	below ro	ot of we	ld)	
Left Base Metal Zones			ones	Wel	d	Right	Base Me	tal Zo	nes
Unafi	fected He	at Affe	cted			Unaff	ected H	eat Af	fected
No.	HRB	No.	HRB	No.	HRB	No.	HRB	No.	HRB
14.	95.6	15.	99.9	16.	96.4	17.	97.9	18.	99.9

This POR was documented to code requirements by $\frac{104}{104}$ $\frac{104}{104}$ of SwL as Report No. 911171-2 from the welding variables recorded by Copper State Rubber, Inc. during the welding of the test coupons and the results of tensile, guided-bend, hardness, and charpy impact tests performed by SwL.

Date: 10/07/91 Reviewed By:

Client No.: 12-8075-00

Welder: Randy Wiseman ID/Stamp No.: 234-48-95

We, the undersigned, certify that the statements in this record are correct and that the test welds were prepared and tested in accordance with code requirements.

Signed: Copper State Rubber, Inc.

Date: OCT 8, 1991

Eace GAER 1 By:___

ROGER D. PEACE

SwL

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SOUTHWESTERN LABORATORIES

Welder Qualification Test Record, WQTR No. 930635-1 Section IX, ASME Boiler & Pressure Vessel Code, 1992 Edition

Using WPS No. 911171-1 Rev. 1, Welder Jay B. Williams, ID No. 453-06-6487, qualified for the following ranges.

Test Variables	Test Values	Qualification Range
PROCESS	GMAW-S	GMAW-S Only
BACKING:	Without	With or Without States
MATERIAL SPECIFICATION	Quénched & Tempéred AISI 4130 To API 6A TP 75K	P-No: 1 through P-No: 11, P-No. 4X and unassigned metals of similar chemical composition
DEPOSIT THICKNESS:	Call She to the She	A ward and the second state of the second
GROOVE	1/8"	9/64" Maximum
FILLET HER AND	Not Applicable	wate of the character seat of the
DIAMETER:	a Shina ang ang ang ang ang ang ang ang ang a	Sector and the sector of the
GROOVE	4-1/2" OD	2=7/8" OD & Over
FILLET States	Not Applicable	Any
FILLER METAL:		
SPECIFICATION	SFA-5.28	
CLASSIFICATION	AWS ER80S-D2	
F.NO	6	6, or any bare wire conforming to an analysis listed in QW-442
POSITION	\oplus $1G$. The second	Flat Only
VERTICAL WELDING DIRECTION	Not Applicable	en en la companya de
BACKING GAS:	Without	With or Without a second state

Examination & Test Results

GUIDED-BEND TEST NO. 60596 PER QW-160:	n en	inter di Kana ang inter	RESULT:
Two Side Bends per QW-462.2		 1337.24	Satisfactory

NOTE: The Guided-bend tests were witnessed by Glen R. Lauritsen, Principal surveyor, ABS AMERICA, a division of The AMERICAN BUREAU of SIIIPPING.

This WQTR was documented to Code requirements by You Lough of SwL as Report No. 930635-1 from the welding variables recorded by Copper State Rubber, Inc., Specialties Co. during the welding of the test coupon and the results of guided-bend tests performed by SwL.

DATE: FILE NO .: 12-8075-00 May 12, 1993.

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Welder Qualification Test Record, WQTR No. 930635-2 Section IX, ASME Boiler & Pressure Vessel Code, 1992 Edition

Using WPS No. 911171-1 Rev. 1, Welder Jay B. Williams, ID No. 453-06-6487, qualified for the following ranges.

Test Variables	Test Values	Qualification Range
PROCESS:	SMAW	SMAW Only
BACKING:	With Stars	With Onlyst And And And
MATERIAL SPECIFICATION	Quenched & Tempered AISI 4130 to API 6A TP 75K	P-No. 1 through P-No. 11, P-No. 4X and unassigned metals of similar chemical composition
DEPOSIT TUICKNESS		tara di kata dan kata kata kata kata kata kata kata ka
CROOVE	5/8"	1-1/4" Maximum - 444
THE REPORT OF A DESCRIPTION OF A DESCRIP		Any Any Content of the
DIAMETER:	The second second second second	and the state of the second
CROOVE		2-7/8" OD & Over
FILLET	Not Applicable	Any at a second state
FILLER METAL:		and the second
SPECIFICATION	SFA-5.5	· 我们的问题。""你们是你的意义。""你们,你们不是你的。"
CLASSIFICATION	AWS E10018-D2	
J-NO.	and the second	Ress - 1 Mar. 1999 Acr. 1, 2, 3, & 4 - 100 mar. 1998 Acres 1998
POSITION	16 - 16 - 16 - 19 - 19 - 19 - 19 - 19 -	Flat Only
VERTICAL WELDING DIRECTION:	Not Applicable	and the second state of the second state of the
BACKING GAS	Not Applicable	

Examination & Test Results

CUIDED-BEND TEST NO	. 60596 PER QW-160:		RESULT:	- 4. J
Two Side Bends pe	er QW-462.2	and the second sec	Satisfactory	

NOTE: The Guided bend lests were witnessed by Glen R. Lauritsen, Principal surveyor, ABS AMERICA, a division of The AMERICAN BUREAU of SITIPPING.

This WQTR was documented to Code requirements by Key John you of SwL as Report No. 930635-2 from the welding variables recorded by Copper State Rubber,

of SwL as Report No. 930635-2 from the welding variables recorded by Copper State Rubber, Inc., Specialties Co. during the welding of the test coupon and the results of guided-bend tests performed by SwL.

DATE May 12, 1993 FILE NO.: 12-8075-00

American Bureau of Shipping

TWO WORLD TRADE CENTER, 106TH FLOOR NEW YORK, NEW YORK 10048

93-11\$57593

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6 May 1993

WELDER OUALIFICATION TEST

Jay Williams Welder's Name: S.S. No:453-06-6487 Identification

OUALIFICATION TESTS: SPECIFICATION - ASME CODE, SECTION IX, Boiler & Pressure vessel code, 1989 Ed, 1990 ad. WELDING PROCESS - Scmi-Auto: GMAW-S - Manual: SMAW JOINT TYPE - Single-V-Groove Weld with no backing BASE MATERIAL TYPE - AISI 4130, API 75k designation BASE MATERIAL THICKNESS/SIZE - 1-1/2" thick FILLER METAL TYPE - GMAW Spcc 5.28 ER805-D2 SMAW Spec 5.5 E10018-D2

FILLER METAL *F" - NO. F-6, F-4 **TEST POSITION - 1G Rolled**

GUIDED BEND TEST RESULTS:

MATERIAL GROUP:

FILLER METAL GROUP:

Specimen No.	Туре	Results		
S-1	Side	Satisfactory		
S-2	Side	Satisfactory		

POSITION AND TYPE WELD OUALIFIED;

API75k designation GMAW 5.28 Spec ER805-D2 SMAW 5.5 Spec E10018-D2

MATERIAL		THICKNESS/SIZE	POSITION
GROOVE WELD:	PLATE & PIPE	MAX TO BE WELDED	FLAT
FILLET WELD	PLATE & PIPE PLATE & PIPE	ALL ALL	FLAT FLAT

ver R.G. Carver, Surveyor

G.R. Lautition nu.)

NOTE: This Report evidences that the survey reported herein was carried out in compliance with one or more of the Rules, guides, standards or other criteria of American Bureau of Shipping and is issued solely for the use of the Bureau, its committees, its clients or other subtraited entities. This Report is a representation andy that the vessel, structure, item of material, equipment, machinery or any other item covered by this Report has been examined for compliance with, or her met one or immer of the Rules, guides, standards or other criteria of American Bureau of Shipping. The validity, applicability, and interpretation of this Report is governed by the Rules and standards of American Bureau of Shipping who shell remain the sole judge thereof. Nothing contained in this Report or in any notation made in contemplation of this Report has been examined in contemplation of this Report or or in any notation made in contemplation of this reports and builder, owner, manufacturer, seller, supplier, repairer, operator or other entity of any warranty express or implied.

AB 141 Revised 12/85

American Bureau of Shipping



STATEMENT OF FACT

CERTIFICATE NO.

93-HS57593

PORT OF

Houston, Texas

DATE 6 May 1993

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Chills is to Certify that the undersigned Surveyor to this Bureau, did, at the request of Copper State Rubber/Specialties of Houston, Texas on the 28th day of April 1993 and in order to witness and report on Welder Qualification Test. For further particulars, see report as follows:

1. The following welder was tested in accordance with Section IX of ASME Boiler and Pressure Vessel Code and the American Welding Society Structural Welding Code. Weld Specimens were physically tested, examined and found satisfactory.

Jay Williams S.S. NO. 453-06-6487

2. For particulars on tests performed, material, electrodes and positions qualified for, see attached sheet.

incert of R.G. Carver, Surveyor

G.R. Lauritsen, Surveyor

This Certificate evidences compliance with one or more of the Rules, guides, standards or other criteria of American Bureau of Shioping and is issued solely for the use of the Bureau, its committees, its clients or other authorized entities. This Certificate is a representation only that the vessel, equipment, structure, item of material, machinery or any other item covered by this Certificate met one or more of the Rules, guides, standards or other criteria of American Bureau of Shipping. The validity, applicability and interpretation of this Certificate is governed by the Rules and standards of American Bureau of Shipping who shalt remain the sole judge thereof. Nothing contained in this Certificate or in any Report issued in contemplation of this Certificate shall be deemed to relieve any designer, builder, owner, manufacturer, seller, supplier, repairer, operator or other entity of any warrenty express or implied.

A8 120 [Revised 2/81]



Projects: Charpy Impact Testing of a Procedure Qualification Test Weld

	TROJECT INFORMATION
WELDING PROCEDURE:	Previously qualified WPS No. 911171-1 (supported by PQR No. 911171-2)
WELDMENT AS-RECEIVED:	AISI 4130, as-welded condition
IDENTIFICATION:	Heat No. A2769
SPECIFICATIONS:	ABS, Guide for the Certification of Drilling Systems, 1990

PROJECT INFORMATION

Post Weld Heat Treatment

SPECIFICATION:	PQR No. 911171-2
TIME:	2 hours at temperature
TEMPERATURE:	1200' F-1210' F
HEATING RATE:	212' F per hour from 700' F
OOLING RATE:	318' F per hour to 700' F

HEAT TREATMENT:	No. 60973	HEAT TREATMENT DATE:	1.1.	. 17	. 1993	
	110.00775		знц	/ 24;	, , , , , , , , , , , , , , , , , , , ,	

Charpy Impact Test Results

SPECIFICATIONS:	0.015" lateral expansion	TEST TEMPERATURE:	Minus 30 ° C
LINEAR JIAMMER VELOCITY:			16.8 feet per second
EFFECTIVE ENERGY:	264 foot pound force	TECHNICIAN:	M. Petersen
SPECIMEN TYPE & SIZE:	nm x 10 mm	·····	
LOCATION & ORIENTATION:	Weld metal, HAZ, and base meta below the surface and transverse		n the fusion linc, 1/16"
TEST EQUIPMENT:	Tinins Olsen Serial No. 103222	TEST PROCEDURE:	ASTM A 370, E 23
TEST NO.:	60988	TEST DATE:	July 14, 1993

SPECIMEN IDENTIFICATION	WIDTH, INCHES	EFFECTIVE THICKNESS, INCISES	IMPACT ENERGY, FT- LBF	LATERAL EXPANSION, MILS	PERCENT DUCTILE FRACTURE
930949-1-1 (WELD)	0.394	0.316	60	40	25
930949-1-2 (WELD)	0.394	0.316	59	40	25
930949-1-3 (WELD)	0.394	0.316	62	42	25

930949-2-1 (11AZ)	0.394	0.316	49	32	25
930949-2-2 (IIAZ)	0.394	0.316	101	60	50
930949-2-3 (IIAZ)	0.394	0.316	40	22	25

SOUTHWESTERN LABORATORIES Page 2 of 2

REPORT NO. : 930949

COPPER STATE RUBBER COMPANY

SPECIMEN IDENTIFICATION	WIDTH, INCHES	EFFECTIVE THECKNESS, INCHES	IMPACT ENERGY, FT- LDF	LATERAL EXPANSION, MILS	PERCENT DUCTILE FRACTURE
930949-3-1 (2 MM)	0.394	0.315	76	50	60
930949-3-2 (2 MM)	0.394	0.315	71	47	60
930949-3-3 (2 MM)	0.394	0.315	114	69	90
930949-4-1 (5 MM)	0.394	0.315	80	47	70
930949-4-2 (5 MM)	0.394	0.315	82	51	70
930949-4-3 (5 MM)	0.394	0.315	75	45	70

COMPLIANCE:

The impact test results met the specification.

la Reviewed B KF/kf

Key

Prepa



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Det norske Veritas Industry, Inc. 16340 Park Ten Place, Suite 100 Houston, Texas 77084 Tel: (713) 579-9003 Facsimile: (713) 579-1360

INSPECTION REPORT

Page 1 of 1

aSKE VA

QAS Project Number: 51-05428-63	QAS Report Number: 51-05428-63-1					
P.O. Number: 2322RP	Inspection Date: February 18, 1994					
Main Vendor: Copper State Rubber	Insp. Location: Houston, Texas					
Sub Vendor: N/A	Vendor Contact: Roger Peace					
Vendor Ref: wps 911171-1	Vendor Phone: 713 644 1491					
Req. No: N/A	Quantity: N/A					
Part No: N/A	Serial No: N/A					
EQUIPMENT DESCRIPTION: Weld Procedure Review						

Inspection Comments:

Purpose of Inspection:	Review Weld Procedure.

Acceptance Criteria:

ASME IX NACE MR-0175 DNV Rules Drill(N), MOU

Reference Documents:

None

Scope of Activity:

DNV reviewed the above Weld Procedure and found it to be in compliance with the above referenced standards with comments (see front page of WPS for comments).

FAX: Yes	Date: 02/	/18/94	Signature: Harold Melton
Distribution:		Attn:	FAX #:
Original to Client:	Copper State Rubber	Roger Peace	713 644 9830
Copy to File:	51-05428-63 (D-217)		



February 18, 1994

Copper State Rubber Attn: Roger Peace 6401 McGrew Street Houston, Texas 77087

Reference: WPS No: 911171-1 Rev. 4

DNV Reference: 51-05428-63

Dear Mr. Peace

Please find enclosed one copy of the referenced weld procedures for your review and action as noted below:

- Reviewed with comments - for your records (For comments - see front page of W.P.S.)

The referenced weld procedure was reviewed against the following standards (latest revision):

X ASME IX DNV Tech. Note	B-108
AWS D1.1 DNV Rules - Lifti	ing Appliances
API 6A DNV Rules - Subr	marine Pipelines
X NACE MR-01-75 X DNV Rules - Drill	I(N) for Mobile Offshore Units

If you should have questions or comments regarding this review, please do not hesitate to contact us and discuss it.

Regards, Harold Melton Q.A. Specialist

Procedure # RT-3

Radiographic Specialists, Inc.

					4	110 Mohawk Ho	uston,	Tx 7709	3				
_				Pho	ne: 28	1-449-1634		Fa	x: 281-44	9-1540			
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The results represent opinions only and are not to be considered as warranties or guarantees of quality, classification, or usability of material examined. We shall assume not further responsibility for radiographs following the acceptance by the customer's field representative upon signing of field report. In no event shall the liability of Radiographic Specialists, Inc., As to any items inspected or tested (including any liability as to selection and/or results of such test) exceed the charge of Radiographic Specialists, Inc. for the inspection of such items.

4110 MOHAWK HOUSTON TX 77093	PHONE (281) 449-1634 PAX (281) 449-1640
RESULTS OF TEST (ON STEEL SPECIMENS
TO: COPPER STATES RUBBER/SPECIAL TIES COMPANY	DATE: 05-31-05
	LAB TEST NO: 05-31-9036
MATERIAL:	CUSTOMER JOB NO:
SPEC. IDENTIFICATION: 5" PIPE PQR TEST TONY A	DAMS
Other Test	
CHARPY IMPACT -30 DEG F	1
WELD METAL	
55 FT LBS 30% SHEAR .048 LAT EXP	125 FT LBS 60 % SHEAR .091 LAT EXP
60 FT LBS 30% SHEAR .062 LAT EXP	120 FT LBS 60% SHEAR .085 LAT EXP
55 FT LBS 30% SHEAR .048 LAT EXP	125 FT LBS 60 % SHEAR 091 LAT EXP

WITNESS BY: ______ RADIOGRAPHIC SPECICALISTS, INC.

COPIES:

BY: TIM BRADLEY ID



8902 N. MAIN HOUSTON, TX 770220 Ph: 713-692-3410 Fax: 713-692-3910

Customer: 00000074 SPECIALTIES COMPANY 6401 MC GREW HOUSTON, TX 77087 Primeu: Uorrorzuuo otuotzuAivi Page 1 of 1

Certification Order Number 35022

Shipped To: WILL CALL 6401 MC GREW HOUSTON, TX 77087

Custom	Customer Purchase Order No. Customer Shipper No. Material Type Mat'l Heat Code										
	486	19				AN	Y				
Process:	STRE	SS RELIE		OCESS	SING SI	PECIF	ICATION	<u>S_</u>	ann ag an thair of anna	an a	
Requirem	ient	Specif	ied		Qty Teste	d	Test Results				
Line#		Quantity	Weight	Part Nur	nber/Descript	ion				Revision	
1 2 3		1	21.0	WELD	X 4-1/4" ID TEST COI S:CSR-486	JPON	NGTH 48608-2-B				
Operati	nc	Spec Temp Range	Specified Soak Time	Fumace# Load#	Atmos/Dpt CarbPot	Q-Media Q-Temp	Start Date	Time In	Time Out	Date Complete	
STRESS		1200	1:00	3			05/18/2005	2:45	6:30	05/18/2005	
					СОММ	ENTS					

JAMES MUSGROVE Date Sighed

IDENTIFICATION 5" PIPE PQR TEST TONY ADAMS

> REVIEW OF REPUBLIC WORK ORDER [] OERTS] TO CUSTOMED REQUIREMENTS



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FROM ISAGEMACHINE

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FAX NO. : 7137476852 May. 10 2005 02:05PM P1

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6401 McGrew St. Houston, Texas 77087 713-644-1491 713-644-9830 Fax csrhouston@msn.com

ADDENDUM

WELDING PROCEDURE SPECIFICATION, WPS NO.: 911171-1 PROCEDURE QUALIFICATION RECORD, PQR NO.: 911171-2

COMPANY: COPPER STATE RUBBER, INC./SUBSIDIARY OF SPECIALTIES COMPANY

- REVISION 1: DATE 1-31-92 CORRECT TYPOGRAPHIC ERROR STRINGER PASS, AMPERES AND VOLTS
- REVISION 2: DATE 5-12-93 JAY B. WILLIAMS I.D. NO.: 453-06-6487 QUALIFIED TO THIS WPS; WQTR NOS.: 930635-1 AND 930635-2
- REVISION 3: DATE 6-14-93 CORRECT TYPOGRAPHIC ERROR SMAW PROCESS, AMPERES AND VOLTS
- REVISION 4: DATE 7-16-93 WPS QUALIFIED FOR CHARPY IMPACTS AT -30°C; SwL REPORT NO.: 930949
- REVISION 5: DATE 5-31-2005 CHANGE STRESS RELIEVE TIME FROM 2 HOURS TO 1 HOUR

REVIEWE Mè





Page 1 of 1

Specialties Company 14141 S. WAYSIDE DR. Houston, TX 77048 USA Certification ID: 38120-1 Date: 11/21/2017 Cert Date: 11/21/2017 Purchase Order: 7494 Material: ANY

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We are pleased to provide you with the following Certification.

Part Number	Part Description	Qty	Weight
NONE	3"CK W/4-1/16 10M FLANGE, S/N: H1293-H1266	4	820.00
NONE	4"CK W/4-1/16 10K HUBS, S/N: 80868-1,2	2	0.00

	Inspection Type Scale Minimum Maximum									
Results										
Inspection Type	UOFM	Lower Spec	Lower Control	Target Value	Upper Control	Upper Spec				

Operation

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STRESS RELIEVE 1200 FOR 1HR

Certification Statement

THIS MATERIAL HAS BEEN STRESSED PER CUSTOMER REQUIREMENTS

Certified By: Chris Yeppez Title: General Manage Date: 11/21/2047

All work is accepted subject to the fadowing conditions (catepted by the Model Treating institute) : It is generally recognized that even allow at science known to us and capable men with years of traking, there remain hazards in heat treating. Therefore, our fability to our customers shall not accessed whose the amount of air obspices to the work done on any matarias, (first (indicates the relations for the drages and second to compensate in the amount of air obspices to the work done on any matarias, (first (indicates the relations for the drages and second to compensate in the amount of bit treating, institutes the relations for the analysis of the amount of air obspices (cace) by written agreement, Warrun'y will be assumed only whom made is writting and signed by both you and us. In such event, a higher charge will be made for our services. No claims for the drages at writting days atter receipt of matariates by them work our early wells or writting days atter receipt of matariates by customer. No claims will be deveed for indicates, expended for writtings, expendent for indicates the receipt of matariates (histo service) is a brain and to a work or matariate with detailed instructions are beautions, our papenability shall and with the clamying out of these instructions during the atter the during the indicate pathy and correctly the find of matariates. (Nois, Brand, and of drade of Steed), to to trated, and a caces and indicates pathy and correctly the find of matariate, (Maise, Brand, and do drade of Steed), to to trated, the and with the clamying out of these instructions are patholesed to and the any further processing, assambling or any other processing assambling or any other processing, assambling or any other processing assambling or any other proces

Republic Heat Treat

6902 N Main St. Housian, TX, 77022-3612

INDEPENDENCE CONTRACT DRILLING P.O. NO.: P000116446 DATE: FEBRUARY 23, 2018 FILE NO.: CSR / SPECO-81069



Procedure # RT-3

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Radiographic Specialists, Inc.

41 1 0 Mohawk Houston, Tx 77093

				Pho	ne	: 281	-449-1634		Fa	- x: 281-44	9-1640				
IF-Inac BTA-B SL-Sla SI-Sla P-Porc GP-Ga	is Pocket	lon 1 Area	C-Crack IU-Intern OU-Outs LC-Low (lde Und Crown	erc	ut	S/O: P/O: 78 Spec/Hea	/20/17 15	Df <u>:</u>	SEC VII	I SEC	 :. VIII	D	IV.1	1 UW 51
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21								43	11		1				*****
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	Total: 1						Stand-E								
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Technician: <u>TIM BRADLEY</u> Level: <u>III</u> Customer: ______ The results reported represent opinions only and are not to be considered as warranties or guarantees of quality, classification, or usability of material examined. We shall assume not further responsibility for radiographs following the acceptance by the customer's field representative upon signing of field report. In no event shall the liability of Radiographic Specialists, Inc., as to any items inspected or tested (including any liability as to selection and/or results of such test) exceed the charge of Radiographic Specialists, Inc. for the inspection of such items.

> INDEPENDENCE CONTRACT DRILLING P.O. NO.: PO00116446 DATE: FEBRUARY 23, 2018 FILE NO.: CSR / SPECO-81069

RADIOGRAPHIC SPECIALISTS, INC.

4110 MOHAWK HOUSTON TX 77093

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Ph. 281-449-1634

Fax 281-449-1640

TO:	COPPER	STATES

	11/20/17
P. 0. NO.	7815
JOB NO.	
DEL SLIE	>

LOCATION: R.S.L

MAGNETIC PARTICLE INSPECTION REPORT

ITEM NO.	DESCRIPTION		REJ	ACC	COMMENTS
B anggangan an ang ang ang ang ang ang ang	3" CK FTG. W/4-1/16" 10M FLANGE H126:	THRU H1266		x	
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aterials	Used 1 CAN 850A				·······
PPLICABI	E SPECIFICATIONSE709			_	
CCEPTANC	E STANDARD ASME SEC VIII APP6	PAR6.4			
	EXAMINATION 100% OF WELDED A	AKEA			
ROCEDURE	NO. MT-5 Rev. 14	FLUORE	SCEN	Ţ	
ETHOD: Y	DRYDRY TUSED_CONTOUR PROBE	BLACK	LIGH'	F:	
NSTRUMEN	A0			-	
NSTRUMEN ODEL: <u>DAI</u>	<u>8/N./178</u>	CALIBR	ATIO	N:	
ODEL: <u>DA1</u> MPERES: <u>1</u>	00 8/N.7178 0 #LIFT 6.5 AMP.	LIGHT	METE	R:	
ODEL: <u>DA1</u> MPERES: <u>1</u>	0 #LIFT 6.5 AMP. ACXDC	LIGHT PREPARE	METE: Ed bay	R: TH <u>CI</u>	
ODEL: <u>DA1</u> MPERES: <u>1</u>	0 #LIFT 6.5 AMP.	LIGHT PREPARI TYPE:	METE: ED BAS 850A	R: rh <u>Cl</u>	RCLE SAFE
ODEL: <u>DA1</u> MPERES: <u>1</u>	0 #LIFT 6.5 AMP. ACXDC	LIGHT PREPARI TYPE: BATCH	METE: ED BA 850A NO: 1	R : TH <u>CI</u> 9685	RCLE SAFE
ODEL: <u>DA1</u> MPERES: <u>l</u> URRENT:	0 #LIFT 6.5 AMP. ACXDC	LIGHT PREPARI TYPE: BATCH	METE: ED BA 850A NO: 1	R : TH <u>CI</u> 9685	RCLE SAFE
ODEL: <u>DA1</u> MPERES: <u>l</u> URRENT:	0 #LIFT 6.5 AMP. ACXDC	LIGHT PREPARI TYPE: BATCH LEVE	METE: ED BA 850A NO: 1 L III	R : TH <u>CI</u> 9685	RCLE SAFE
ODEL: <u>DA1</u> MPERES; <u> </u> URRENT: ECHNICIA	0 #LIFT 6.5 AMP. ACXDC	LIGHT PREPARH TYPE: BATCH LEVE WITN	METE: ED BA 850A NO: 1 L III	R : TH <u>CI</u> 9685	RCLE SAFE

	(281)449-1634	4110 Mohawk Ho	uston,Texas 77093		Fax (281)449-1640
To: C	OPPER STATE RUBBER		Date: 11-20-17	••••••••••••••••••••••••••••••••••••••	
		ang sa atan na mangana ang sa atan na da na da na da na da na	JOD NO.:		
	Location: R.S.I.	BRINELL	HARDNESS	· · · · · · · · · · · · · · · · · · ·	
	LOCATION	4, ang Marana ang ang ang ang ang ang ang ang ang			
			BASE	WELD	BASE
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H1264			214	206	206
H1265			223	214	223
H1266			214	206	214

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14141 S. Wayside Drive Houston, Texas 77048

Phone 713-644-1491 Fax 713-644-9830 www.copperstaterubber.com sales@copperstaterubber.com

FIELD TEST PROCEDURES FOR USED COPPER STATE RUBBER CHOKE/KILL AND SUPER CHOKE/KILL HOSE

VISUAL INSPECTION ASSEMBLIES WITHOUT STAINLESS STEEL PROTECTIVE ARMOR

- 1. ARRANGE HOSE SO THAT IT CAN BE OBSERVED FROM ALL ANGLES.
- 2. CONDUCT THE EXAMINATION FOR EXTERNAL DAMAGE TO THE COVER, END STRUCTURE, AND TERMINATING CONNECTORS.
- 3. IF THE COVER HAS GOUGING OR TEARS FROM NORMAL ABRASION, THIS CAN BE REPAIRED BY UTILIZING A RUBBER REPAIR KIT. <u>THE SOLE</u> <u>PURPOSE OF THE COVER IS TO PROTECT THE</u> <u>INTERNAL REINFORCEMENT WIRES THAT HOLD THE</u> <u>PRESSURE</u>.
- 4. IF NO INTERNAL WIRES ARE EXPOSED, REPAIR THE COVER DAMAGE BEFORE IT BECOMES WORSE AND EXPOSES THE INTERNAL REINFORCEMENT WIRES TO THE EFFECTS OF THE ELEMENTS. FULL PRESSURE INTEGRITY REMAINS.
- 5. IF ANY OF THE INTERNAL REINFORCEMENT WIRES ARE EXPOSED, CHECK FOR ANY TYPE OF RUST/DETERIORATION OR BREAKS. IF THE WIRES ARE NOT DAMAGED, CLEAN THE AREA AND REPAIR WITH RUBBER REPAIR KIT. FULL PRESSURE INTEGRITY REMAINS.
- 6. IF ANY OF THE INTERNAL REINFORCEMENT WIRES ARE DAMAGED, THE HOSE SHOULD BE REMOVED FROM SERVICE IMMEDIATELY AND CONSIDERED UNSAFE FOR FURTHER SERVICE.

INDEPENDENCE CONTRACT DRILLING P.O. NO.: PO00116446 DATE: FEBRUARY 23, 2018 FILE NO.: CSR / SPECO-81069

Marine, Industrial, and Oilfield Hose Made in the U.S.A.



VISUAL INSPECTION ASSEMBLIES WITH STAINLESS STEEL PROTECTIVE ARMOR

- 1. FOLLOW STEPS 1 AND 2 FOR ASSEMBLIES WITHOUT STAINLESS STEEL PROTECTIVE ARMOR.
- 2. IF THE OUTER STL/ST PROTECTIVE ARMOR HAS BEEN BROKEN, EXAMINE THE RUBBER COVER FOR GOUGES OR TEARS FROM NORMAL ABRASION. THEN FOLLOW STEP 4 FOR ASSEMBLIES WITHOUT STAINLESS STEEL PROTECTIVE ARMOR.
- 3. SECURE LOOSE ENDS OF PROTECTIVE ARMOR TO PROTECT AGAINST ADDITIONAL GOUGES OR TEARS TO RUBBER COVER.
- 4. HOSE ASSEMBLY SHOULD BE RETURNED TO COPPER STATE RUBBER, PHOENIX, ARIZONA USA AS SOON AS POSSIBLE FOR REPAIRS TO PROTECTIVE ARMOR.
- 5. IF ANY OF THE INTERNAL REINFORCEMENT WIRES ARE EXPOSED, CHECK FOR ANY TYPE OF RUST/DETERIORATION OR BREAKS. IF THE WIRES ARE NOT DAMAGED, CLEAN THE AREA AND REPAIR WITH RUBBER REPAIR KIT. FULL PRESSURE INTEGRITY REMAINS.
- 6. IF ANY OF THE INTERNAL REINFORCEMENT WIRES ARE DAMAGED, THE HOSE SHOULD BE REMOVED FROM SERVICE IMMEDIATELY AND CONSIDERED UNSAFE FOR FURTHER SERVICE.

CSR RECOMMENDS VISUAL INSPECTION WHENEVER POSSIBLE, ON A DAILY BASIS.

HYDROSTATIC TEST

1. TEST HOSE TO 1-1/4 TIMES MAX. ALLOWABLE WORKING PRESSURE WITH WATER, OIL, OR MUD BEING SURE ALL AIR HAS BEEN BLED OFF. HOLD FOR 15 MINUTES AFTER PRESSURE HAS STABILIZED

CSR RECOMMENDS HYDROSTATIC TEST AT APPROXIMATELY 6 MONTH INTERVALS ON RIG AND HOSE BE RETURNED TO OEM FOR INSPECTION AND RECERTIFICATION AT 5 YEARS FROM MANUFACTURE

F:\WPDOCS\MSTR\TESPRO5

COPPER STATE RUBBER

14141 S WAYSIDE DR. HOUSTON, TEXAS 77048 TEL: (713) 644-1491 FAX: (713) 644-9830

WARRANTY TERMS AND CONDITONS

COPPER STATE RUBBER DRILLING HOSES ARE GUARANTEED FOR THE PERIOD OF 12 MONTHS (FROM DATE OF FIRST SERVICE) TO BE FREE FROM DEFECTS IN MATERIALS AND/OR WORKMANSHIP.

IN ORDER TO ESTABLISH A VALID WARRANTY CLAIM, CUSTOMER MUST GIVE NOTICE TO COPPER STATE RUBBER WITHIN 10 DAYS AFTER DISCOVERING THE DEFECT. WE WILL ADVISE IF HOSE SHOULD BE RETURNED TO FACTORY FOR INSPECTION (FREIGHT PREPAID). IF COPPER STATE DETERMINES HOSE TO BE DEFECTIVE, COPPER STATE WILL REPAIR OR REPLACE (AT ITS OPTION) THE HOSE IN QUESTION. ALL REPAIRS AND REPLACEMENTS WILL BE F.O.B. COPPER STATE RUBBER'S PLANT.

REMOVAL OR WELDING OF END FITTINGS WILL VOID WARRANTY



INDEPEN P.O. NO.: DATE: FI FILE NO.

INDEPENDENCE CONTRACT DRILLING P.O. NO.: PO00116446 DATE: FEBRUARY 23, 2018 FILE NO.: CSR / SPECO-81069

Casing Program

	Ca	asing	Csg. Size	Weight		Conn.	SF	SF Burst	SF
Hole Size	From	То	Usy. Size	(lbs)	Graue	CONN.	Collapse	Si Duist	Tension
17.5"	0	1065	13.375"	54.5	J55_	STC	2.37	7.09	8.86
12.25"	0	11515	9.625"	47	HCL80	втс	1.62	1.08	2.07
8.75"	0	22,148	5.5"	23	P110	втс	1.82	2.15	2.56
			BLN	/ Minimur	n Safety	Factor	1.125	1	1.6 Dry 1.8 Wet

Intermediate casing will be kept at least 1/3 full while running casing.to mitigate collapse. Intermediate burst based on 0.7 frac gradient at the shoe with Gas Gradient 0.1 psi/ft to surface. All casing strings will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.h

Casing Program

	Ca	asing	Csg. Size	Weight		Conn.	SF	SF Burst	SF
Hole Size	From	То	Cay. 3128	(lbs)	Graue	Conn.	Collapse	Sr Buist	Tension
17.5"	0	1065	13.375"	54.5	J55	STC	2.37	7.09	8.86
12.25"	0	11515	9.625"	47	HCL80	втс	1.62	1.08	2.07
8.75"	0	22,148	5.5"	23	P110	втс	1.82	2.15	2.56
			BLN	1 Minimur	n Safety	Factor	1.125	1	1.6 Dry 1.8 Wet

Intermediate casing will be kept at least 1/3 full while running casing.to mitigate collapse. Intermediate burst based on 0.7 frac gradient at the shoe with Gas Gradient 0.1 psi/ft to surface. All casing strings will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.h

Casing Program

Hole Size	Casing		Csg. Size	Weight	Grade	Conn	SF	SF Burst	SF
HUIE SIZE	From	То	Usy. Size	(lbs)	Graue	C0111.	Collapse	or burst	Tension
17.5"	0	1065	13.375"	54.5	J55	STC	2.37	7.09	8.86
12.25"	0	11515	9.625"	47	HCL80	втс	1.62	1.08	2.07
8.75"	0	22,148	5.5"	23	P110	втс	1.82	2.15	2.56
BLM Minimum Safety Factor 1.125							1	1.6 Dry 1.8 Wet	

Intermediate casing will be kept at least 1/3 full while running casing.to mitigate collapse. Intermediate burst based on 0.7 frac gradient at the shoe with Gas Gradient 0.1 psi/ft to surface. All casing strings will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.h

1. Geologic Formations

TVD	of target	12,282'	Pilot hole depth	NA
MD	at TD:	22,148'	Deepest expected fresh water:	207'

Formation	Depth (TVD) from KB	Water/Mineral Bearing/ Target Zone?	Hazards*		
Quaternary Fill	Surface	Water			
Rustler	835	Water			
Top of Salt	1176	Salt			
Base of Salt	4971	Salt			
Lamar	5302	Salt Water			
Bell Canyon	5334	Salt Water			
Cherry Canyon	6273	Oil/Gas			
Brushy Canyon	7733	Oil/Gas			
Bone Spring Lime	8964	Oil/Gas			
U. Avalon Shale	9181	Oil/Gas			
L. Avalon Shale	9545	Oil/Gas			
1st Bone Spring Sand	10362	Oil/Gas			
2nd Bone Spring Sand	10882	Oil/Gas			
3rd Bone Spring Sand	11939	Target Oil/Gas			
Wolfcamp	12343	Not Penetrated			

2. Casing Program

Hole Size	Ca From	asing To	Csg. Size	Weight (Ibs)	Grade	Conn.	SF Collapse	SF Burst	SF Tension
17.5"	0	1065	13.375"	54.5	J55	STC	2.37	7.09	8.86
12.25"	0	11515	9.625"	47	HCL80	втс	1.62	1.08	2.07
8.75"	0	22,148	5.5"	23	P110	втс	1.82	2.15	2.56
BLM Minimum Safety Factor						1.125	1	1.6 Dry 1.8 Wet	

Intermediate casing will be kept at least 1/3 full while running casing to mitigate collapse. Intermediate burst based on 0.7 frac gradient at the shoe with Gas Gradient 0.1 psi/ft to surface.

All casing strings will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.h

COs Operating, LLC - Fez Federal Com 602H

	YorN
Is casing new? If used, attach certification as required in Onshore Order #1	Y
Does casing meet API specifications? If no, attach casing specification sheet.	Y
Is premium or uncommon casing planned? If yes attach casing specification sheet.	N
Does the above casing design meet or exceed BLM's minimum standards? If not provide justification (loading assumptions, casing design criteria).	Y
Will the intermediate pipe be kept at a minimum 1/3 fluid filled to avoid approaching the collapse pressure rating of the casing?	Y
Is well located within Capitan Reef?	N
If yes, does production casing cement tie back a minimum of 50' above the Reef? Is well within the designated 4 string boundary?	,
Is well located in SOPA but not in R-111-P?	N
If yes, are the first 2 strings cemented to surface and 3 rd string cement tied back 500' into previous casing?	
Is well located in R-111-P and SOPA?	N
If yes, are the first three strings cemented to surface?	
Is 2 nd string set 100' to 600' below the base of salt?	
Is well located in high Cave/Karst?	N
If yes, are there two strings cemented to surface?	
(For 2 string wells) If yes, is there a contingency casing if lost circulation occurs?	
Is well located in critical Cave/Karst?	N
If yes, are there three strings cemented to surface?	
COG Operating, LLC - Fez Federal Com 602H

3. Cementing Program

Casing	# Sks	Wt. lb/ gal	YId ft3/ sack	H₂0 gal/sk	500# Comp. Strength (hours)	Slurry Description
C f	450	13.5	1.75	9	12	Lead: Class C + 4% Gel
Surf.	250	14.8	1.34	6.34	8	Tail: Class C + 2% CaCl2
Inter.	930	11	2.8	19	48	Lead: NeoCem
Stage1	300	16.4	1.1	5	8	Tail: Class H
				DV Too	l @ 5275'	
Inter.	730	11	2.8	19	48	Lead: NeoCem
Stage2	100	14.8	1.35	6.34	8	Tail: Class C + 2% Cacl
	400	12.7	2	10.6	16	Lead: 35:65:6 H Blend
5.5 Prod	2930	14.4	1.24	5.7	19	Tail: 50:50:2 Class H Blend

Volumes Subject to Observed Hole Conditions and/or Fluid Caliper Results Lab reports with the 500 psi compressive strength time for the cement will be onsite for review.

Casing String	TOC	% Excess
Surface	0'	50%
1 st Intermediate	0'	50%
Production	10,515'	35%

4. Pressure Control Equipment

A variance is requested for the use of a diverter on the surface casing. See attached for schematic.

BOP installed and tested before drilling which hole?	Size?	Min. Required WP	Ту	pe	X	Tested to:				
			Anr	ular	х	2500 psi				
	13-5/8"	5M	Blind	Ram	х					
12-1/4"			Pipe	Ram	х	EN 4				
			Double	e Ram		5M				
			Other*							
			5M Ai	nnular	х	5000 psi				
	13-5/8"					[Blind Ram		х	
8-3/4"		10M	Pipe	Ram	х	1014				
			Doubl	e Ram		10M				
			Other*							

BOP/BOPE will be tested by an independent service company to 250 psi low and the high pressure indicated above per Onshore Order 2 requirements. The System may be upgraded to a higher pressure but still tested to the working pressure listed in the table above. If the system is upgraded all the components installed will be functional and tested.

Pipe rams will be operationally checked each 24 hour period. Blind rams will be operationally checked on each trip out of the hole. These checks will be noted on the daily tour sheets. Other accessories to the BOP equipment will include a Kelly cock and floor safety valve (inside BOP) and choke lines and choke manifold. See attached schematics.

	Formation integrity test will be performed per Onshore Order #2.				
Y	On Exploratory wells or on that portion of any well approved for a 5M BOPE system or greater, a pressure integrity test of each casing shoe shall be performed. Will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.i.				
Y	A variance is requested for the use of a flexible choke line from the BOP to Choke Manifold. See attached for specs and hydrostatic test chart.				
<u> </u>	N Are anchors required by manufacturer?				
Ν	A multibowl wellhead is being used. The BOP will be tested per Onshore Order #2 after installation on the surface casing which will cover testing requirements for a maximum of 30 days. If any seal subject to test pressure is broken the system must be tested.				

5. Mud Program

	Depth		Weight	Magazita	
From	То	Туре	(ppg)	Viscosity	Water Loss
0	Surf. Shoe	FW Gel	8.4 - 8.6	28-29	N/C
Surf csg	Int shoe	Diesel Brine Emul	8.6 - 8.9	30-40	N/C
Int shoe	Lateral TD	OBM	10.5 - 12.5	30-40	20

Sufficient mud materials to maintain mud properties and meet minimum lost circulation and weight increase requirements will be kept on location at all times.

What will be use	ed to monitor the loss or gain of fluid?	PVT/Pason/Visual Monitoring

6. Logging and Testing Procedures

Logging, Coring and Testing.		
Y	Will run GR/CNL from TD to surface (horizontal well – vertical portion of hole). Stated logs run will be in the Completion Report and submitted to the BLM.	
N	Are Logs are planned based on well control or offset log information.	
N	Drill stem test? If yes, explain.	
Ν	Coring? If yes, explain.	

Ad	ditional logs planned	Interval
N	Resistivity	Pilot Hole TD to ICP
N	Density	Pilot Hole TD to ICP
Y	CBL	Production casing (If cement not circulated to surface)
Y _	Mud log	Intermediate shoe to TD
N	PEX	

7. Drilling Conditions

Condition	Specify what type and where?	
BH Pressure at deepest TVD	7985 psi at 12282' TVD	
Abnormal Temperature	NO 180 Deg. F.	

No abnormal pressure or temperature conditions are anticipated. Sufficient mud materials to maintain mud properties and weight increase requirements will be kept on location at all times.

Sufficient supplies of Paper/LCM for periodic sweeps to control seepage and losses will be maintained on location.

Hydrogen Sulfide (H2S) monitors will be installed prior to drilling out the surface shoe. If H2S is detected in concentrations greater than 100 ppm, the operator will comply with the provisions of Onshore Oil and Gas Order #6. If Hydrogen Sulfide is encountered, measured values and formations will be provided to the BLM.

N H2S is present

Y H2S Plan attached

8. Other Facets of Operation

	Y	Is it a walking operation?
1	N	Is casing pre-set?

×	H2S Plan.	
×	BOP & Choke Schematics.	
×	Directional Plan	
×	5M Annular Variance	



1. Component and Preventer Compatibility Table

The table below covers drilling and casing of the 10M MASP portion of the well and outlines the tubulars and the compatible preventers in use. Combined with the mud program, the below documents that two barriers to flow can be maintained at all times, independent of the rating of the annular preventer.

Component	OD	Preventer	RWP	
Drill pipe	5"			
HWDP	5"			
Jars	5"	Upper 4.5-7" VBR	1014	
Drill collars and MWD tools	6.25-6.75"	Lower 4.5-7" VBR	10M	
Mud Motor	6.75"			
Production casing	5.5"			
ALL	0-13-5/8"	Annular	5M	
Open-hole	-	Blind Rams	10M	

VBR = Variable Bore Ram with compatible range listed in chart.

2. Well Control and Shut-In Procedures

Well control procedures are specific to the rig equipment and the operation at the time the kick occurs. Below are minimum tasks prescribed to assure a proper shut-in while drilling, tripping, running casing, pipe out of the hole (open hole), and moving the BHA through the BOPs. The maximum pressure at which well control is transferred from the annular to another compatible ram is 2500 psi.

Drilling:

- 1. Sound the alarm (alert rig crew)
- 2. Space out the drill string
- 3. Shut down pumps and stop the rotary
- 4. Shut-in the well with the annular with HCR and choke in closed position
- 5. Confirm the well is shut-in
- 6. Notify contractor and company representatives
- 7. Read and record the following data
 - Time of shut-in
 - SIDPP and SICP
 - Pit gain
- 8. If pressure has increased to or is anticipated to increase to 2500 psi, confirm spacing and close the upper pipe rams.
- 9. Prepare for well kill operation.

Tripping:

- 1. Sound alarm (alert rig crew)
- 2. Stab full opening safety valve and close the valve
- 3. Space out the drill string
- 4. Shut-in the well with the annular with HCR and choke in closed position
- 5. Confirm shut-in
- 6. Notify contractor and company representatives
- 7. Read and record the following data:



- Time of shut-in
- SIDPP and SICP
- Pit gain
- 8. If pressure has increased to or is anticipated to increase to 2500 psi, confirm spacing and close the upper pipe rams.
- 9. Prepare for well kill operation.

Running Casing

- 1. Sound alarm (alert rig crew)
- 2. Stab crossover and valve and close the valve
- 3. Shut-in the well with annular with HCR and choke in closed position
- 4. Confirm shut-in
- 5. Notify contractor and company representatives
- 6. Read and record the following data
 - Time of shut-in
 - SIDPP and SICP
 - Pit gain
- 7. If pressure has increased to or is anticipated to increase to 2500 psi, confirm spacing and close the upper pipe rams.
- 8. Prepare for well kill operation

No Pipe in Hole (Open Hole)

- 1. At any point when pipe or BHA are not in BOP stack, well will be shut in with blind rams, HCR will be open and choke will be closed. If pressure increase is observed:
- 2. Sound alarm (alert crew)
- 3. Confirm shut-in
- 4. Notify contractor and company representatives
- 5. Read and record the following data
 - Time of shut-in
 - Time of pressure increase
 - SICP
- 6. Prepare for well kill operation

Pulling BHA through BOP Stack

- 1. Prior to pulling last joint/stand of drillpipe through the stack, perform a flow check. If well is flowing:
 - a. Sound alarm (alert crew)
 - b. Stab full opening safety valve and close the valve
 - c. Space out drill string with tooljoint just beneath the upper pipe ram.
 - d. Shut-in the well with upper pipe ram with HCR and choke in closed position
 - e. Confirm shut-in
 - f. Notify contractor and company representatives
 - g. Read and record the following data
 - Time of shut-in
 - SIDPP and SICP
 - Pit gain
 - h. Prepare for well kill operation.



- 2. With BHA in the stack:
 - a. If possible to pick up high enough, pull BHA clear of the stack
 - i. Follow "Open Hole" procedure above
 - b. If impossible to pick up high enough to pull BHA clear of the stack:
 - i. Stab crossover, make up one joint/stand of drillpipe, and full opening safety valve and close
 - ii. Space out drill string with tool joint just beneath the upper pipe ram.
 - iii. Shut-in the well with upper pipe ram with HCR and choke in closed position
 - iv. Confirm shut-in
 - v. Notify contractor and company representatives
 - vi. Read and record the following:
 - Time of shut-in
 - SIDPP and SICP
 - Pit gain
 - vii. Prepare for well kill operation.

3. Well Control Drills

Well control drills are specific to the rig equipment, personnel and operation at the time a kick occurs. Each crew will execute one drill weekly relevant to ongoing operations, but will make a reasonable attempt to vary the type of drills. The drills will be recorded in the daily drilling log. Below are minimum tasks for respective well control drills.

Drilling/Pit:

Action	Responsible Party		
Initiate Drill Lift Flow Sensor or Pit Float to indicate a kick Immediately record start time 	Company Representative / Rig Manager		
 Recognition Driller and/or Crew recognizes indicator Driller stop drilling, pick up off bottom and spaces out drill string, stop pumps and rotary Conduct flow check 	Driller		
 Initiate Action Sound alarm, notify rig crew that the well is flowing 	Company Representative / Rig Manager		
 Reaction Driller moves BOP remote and stands by Crew is at their assigned stations Time is stopped Record time and drill type in the Drilling Report 	Driller / Crew		



Tripping Pit Drills (either in the hole or out of the hole)

Action	Responsible Party Company Representative / Rig Manager Driller	
Initiate Drill Lift Flow Sensor or Pit Float to indicate a kick Immediately record start time 		
Recognition Driller recognizes indicator Suspends tripping operations Conduct Flow Check 		
Initiate ActionSound alarm, notify rig crew that the well is flowing	Company Representative / Rig Manager	
 Reaction Position tool joint above rotary and set slips Stab FOSV and close valve Driller moves to BOP remote and stands by Crew is at their assigned stations Time is stopped Record time and drill type in the Drilling Report 	Driller / Crew	

Choke

Action	Responsible Party
 Have designated choke operator on station at the choke panel Close annular preventer Pressure annulus up 200-300 psi Pump slowly to bump the float and obtain SIDPP At choke operator instruction, slowly bring pumps online to slow pump rate while holding casing pressure constant at the SICP. Allow time for the well to stabilize. Mark and record circulating drillpipe pressure. Measure time lag on drillpipe gauge after choke adjustments. Hold casing pressure constant as pumps are slowed down while choke is closed. Record time and drill type in the Drilling Report 	Company Man / Rig Manager & Rig Crew



U.S. Department of the Interior BUREAU OF LAND MANAGEMENT

APD ID: 10400028416

Operator Name: COG OPERATING LLC

Well Name: FEZ FEDERAL COM

Well Type: OIL WELL

Submission Date: 03/16/2018

Well Number: 602H

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09/28/2018

SUPO Data Report

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Well Work Type: Drill

Section 1 - Existing Roads

Will existing roads be used? YES

Existing Road Map:

COG_Fez_602H_ExistingRd_20180315094021.pdf

Existing Road Purpose: ACCESS

Row(s) Exist? NO

ROW ID(s)

ID:

Do the existing roads need to be improved? NO

Existing Road Improvement Description:

Existing Road Improvement Attachment:

Section 2 - New or Reconstructed Access Roads	
---	--

Will new roads be needed? YES

New Road Map:

COG_Fez_602H_MapsPlats_20180315094044.pdf

New road type: TWO-TRACK

Length: 11 Feet Width (ft.): 30

Max slope (%): 33

Max grade (%): 1

Army Corp of Engineers (ACOE) permit required? NO

ACOE Permit Number(s):

New road travel width: 14

New road access erosion control: Water will be diverted where necessary to avoid ponding, prevent erosion, maintain good drainage, and to be consistent with local drainage patterns. New road access plan or profile prepared? NO

New road access plan attachment:

Access road engineering design? NO

Access road engineering design attachment:

Operator Name: COG OPERATING LLC

Well Name: FEZ FEDERAL COM

Well Number: 602H

Access surfacing type: OTHER

Access topsoil source: ONSITE

Access surfacing type description: Caliche

Access onsite topsoil source depth: 6

Offsite topsoil source description:

Onsite topsoil removal process: Blading

Access other construction information: No turnouts are planned. Re-routing access road around proposed well location.

Access miscellaneous information:

Number of access turnouts:

Access turnout map:

Drainage Control

New road drainage crossing: OTHER

Drainage Control comments: None necessary.

Road Drainage Control Structures (DCS) description: None needed.

Road Drainage Control Structures (DCS) attachment:

Access Additional Attachments

Additional Attachment(s):

Section 3 - Location of Existing Wells

Existing Wells Map? YES

Attach Well map:

COG_Fez_602H_1Mile_20180315094100.pdf

Existing Wells description:

Section 4 - Location of Existing and/or Proposed Production Facilities

Submit or defer a Proposed Production Facilities plan? SUBMIT

Production Facilities description: A tank battery and facilities will be constructed adjacent to the north side of the Fez Federal Com 601H, 602H, and 701H well pad as shown on the Fez Federal Com East CTB Production Facility Layout. The tank battery and facilities will be installed according to API specifications. No flow lines are anticipated at this time. **Production Facilities map:**

COG_Fez_East_CTB_20180315092214.pdf COG_Fez_602H_Prod_Facility_20180315094113.pdf

Operator Name: COG OPERATING LLC

Well Name: FEZ FEDERAL COM

Well Number: 602H

Water Sou	Irce Table	
Water source use type: IN	ITERMEDIATE/PRODUCTION CASING	Water source type: OTHER
Describe type: Brine		
Source latitude:		Source longitude:
Source datum:		-
Water source permit type	: PRIVATE CONTRACT	
Source land ownership: (COMMERCIAL	· · ·
Water source transport m	ethod: TRUCKING	
Source transportation lan	id ownership: COMMERCIAL	
Water source volume (ba	rrels): 30000	Source volume (acre-feet): 3.866793
Source volume (gal): 126	0000	
Water source use type: S	TIMULATION, SURFACE CASING	Water source type: OTHER
Describe type: Fresh Wate		
Source latitude:	51	Source longitude:
Source datum:		Source longitude.
Water source permit type		
Source land ownership: F		
Water source transport m		
Source transportation lan		
Water source volume (ba		Source volume (acre-feet): 58.001892
Source volume (gal): 1890		
		·
Vater source and transport	ation map:	
OG_Fez_602H_BrineH2O_2	-	
COG_Fez_602H_FreshH2O_2		
	esh water will be obtained from CP-1285 be obtained from the Salty Dog Brine stati	Dinwiddle Cattle Co. water well located in Section 5 on located in Section 5. T19S. R36E.
New Water	r Well Info	
Well latitude:	Well Longitude:	Well datum:
Well target aquifer:		
Est. depth to top of aquife	r(ft): Est thickness o	of aquifer:
Aquifer comments:		

Well Number: 602H

Section 8 - Ancillary Facilities

Are you requesting any Ancillary Facilities?: YES

Ancillary Facilities attachment:

COG_Fez_602H_GCP_20180315094216.pdf

Comments: GCP Attached.

Section 9 - Well Site Layout

Well Site Layout Diagram:

COG_Fez_East_CTB_20180315092238.pdf

COG_Fez_602H Prod Facility_20180315094232.pdf

Comments: A tank battery and facilities will be constructed adjacent to the north side of the Fez Federal Com 601H, 602H, and 701H well pad as shown on the Fez Federal Com East CTB Production Facility Layout. The tank battery and facilities will be installed according to API specifications. No flow lines are anticipated at this time.

Section 10 - Plans for Surface Reclamation

Type of disturbance: New Surface Disturbance

Multiple Well Pad Name: FEZ FEDERAL COM

Multiple Well Pad Number: 601H, 602H AND 701H

Recontouring attachment:

Drainage/Erosion control construction: No straw waddles will necessary.

Drainage/Erosion control reclamation: East 80'

Well pad proposed disturbance	Well pad interim reclamation (acres):	Well pad long term disturbance
(acres): 3.67	0.15	(acres): 3.35
Road proposed disturbance (acres):	Road interim reclamation (acres):	Road long term disturbance (acres):
0.001	0.001	0.001
Powerline proposed disturbance	Powerline interim reclamation (acres):	Powerline long term disturbance
(acres): 0	0	(acres): 0
Pipeline proposed disturbance	Pipeline interim reclamation (acres): 0	Pipeline long term disturbance
(acres): 0		(acres): 0
(acres): 0 Other proposed disturbance (acres): () Other interim reclamation (acres): 0	Other long term disturbance (acres): 0
Total proposed disturbance: 3.671	Total interim reclamation: 0.151	Total long term disturbance: 3.351

Disturbance Comments:

Reconstruction method: New construction of pad.

Topsoil redistribution: East 80'

Soil treatment: None

Existing Vegetation at the well pad: Shinnery Oak/Mesquite grassland

Page 6 of 10

Well Name: FEZ FEDERAL COM

Existing Vegetation at the well pad attachment:

Existing Vegetation Community at the road: Shinnery Oak/Mesquite grassland Existing Vegetation Community at the road attachment: Existing Vegetation Community at the pipeline: Shinnery Oak/Mesquite grassland Existing Vegetation Community at the pipeline attachment:

Existing Vegetation Community at other disturbances: N/A Existing Vegetation Community at other disturbances attachment:

Non native seed used? NO

Non native seed description:

Seedling transplant description:

Will seedlings be transplanted for this project? NO

Seedling transplant description attachment:

Will seed be harvested for use in site reclamation? NO Seed harvest description: Seed harvest description attachment:

Seed Management

Seed Table

Seed type:

Seed name:

Source name:

Source phone:

Seed cultivar:

Seed use location:

PLS pounds per acre:

Seed source:

Source address:

Proposed seeding season:

Seed S	ummary
Seed Type	Pounds/Acre

Total pounds/Acre:

Well Name: FEZ FEDERAL COM

Well Number: 602H

Seed reclamation attachment:

Operator Contact/Responsible Official Contact Info

First Name: Gerald

Phone: (432)260-7399

Last Name: Herrera

Email: gherrera@concho.com

Seedbed prep:

Seed BMP:

Seed method:

Existing invasive species? NO

Existing invasive species treatment description:

Existing invasive species treatment attachment:

Weed treatment plan description: N/A

Weed treatment plan attachment:

Monitoring plan description: N/A

Monitoring plan attachment:

Success standards: N/A

Pit closure description: N/A

Pit closure attachment:

COG_Fez_602H_Closed_Loop_20180315094254.pdf

Section 11 - Surface Ownership

Disturbance type: WELL PAD

Describe:

Successive: PRIVATE OWNERSHIP	·	
Other surface owner description:		
BIA Local Office:		
BOR Local Office:		
COE Local Office:		
DOD Local Office:		
NPS Local Office:		
State Local Office:		
Military Local Office:		

Operator Name: COG OPERATING LLC

Well Name: FEZ FEDERAL COM

Well Number: 602H

USFWS Local Office:

Other Local Office:

USFS Region:

USFS Forest/Grassland:

USFS Ranger District:

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Foo Owned Rubent A. Maderi	Trod gwynig'r Alfonders Proj. Eigy 2425 Wyraghar, New System
Phones (1576)(200-2001	Email:
Bunkich usis glän derilligenten NO	
Surface use plan certification document:	
Junico cooss cynomantorbond: Agreamant	
Suifice Access Marcandril Need deconstitutes: A S	NA secondo bárda CÓS Opening N.S and Apea F.
Madianarwas finalizadi an 7/27/2046.	
Surface Access Bond BLM or Forest Service:	
BLM Surface Access Bond number:	
USFS Surface access bond number:	
Section 12 - Other Information	
Right of Way needed? NO	Use APD as ROW?
ROW Type(s):	
ROW Applications	
· · · · · · · · · · · · · · · · · · ·	
· · · · · · · · · · · · · · · · · · ·	3
SUPO Additional Information:	
Use a previously conducted onsite? YES	:
Previous Onsite information: Onsite completed on 11/30/	2017 by Gerald Herrera (COG) and Jeff Robertson (BLM).

Other SUPO Attachment

COG_Fez_602H_Certification_20180315094308.pdf

Surface Use Plan COG Operating LLC Fez Federal Com 602H SHL: 280' FSL & 1690' FWL UL N Section 9, T25S, R35E BHL: 200' FNL & 1450' FWL UL C Section 4, T25S, R35E Lea County, New Mexico

OPERATOR CERTIFICATION

I hereby certify that I, or persons under my direct supervision, have inspected the drill site and access road proposed herein; that I am familiar with the conditions that presently exist; that I have full knowledge of State and Federal laws applicable to this operation; that the statements made in this APD package are, to the best of my knowledge, true and correct; and that the work associated with the operations proposed herein will be performed in conformity with this APD package and the terms and conditions under which it is approved. I also certify that I, or COG Operating LLC, am responsible for the operations conducted under this application. These statements are subject to the provisions of 18 U.S.C. 1001 for the filing of false statements. Executed this Δ_{15}^{5+} day of $D_{exercise}$, 2017.

Signed:

Printed Name: Mayte Reyes Position: Regulatory Analyst Address: 2208 W. Main Street, Artesia, NM 88210 Telephone: (575) 748-6945 E-mail: <u>mreyes1@concho.com</u> Field Representative (if not above signatory): Rand French Telephone: (575) 748-6940. E-mail: <u>rfrench@concho.com</u>





U.S. Department of the Interior BUREAU OF LAND MANAGEMENT



Section 1 - General

Would you like to address long-term produced water disposal? NO

Section 2 - Lined Pits

Would you like to utilize Lined Pit PWD options? NO Produced Water Disposal (PWD) Location: PWD surface owner: Lined pit PWD on or off channel: Lined pit PWD discharge volume (bbl/day): Lined pit specifications: Pit liner description: Pit liner manufacturers information: Precipitated solids disposal: Decribe precipitated solids disposal: Precipitated solids disposal permit: Lined pit precipitated solids disposal schedule: Lined pit precipitated solids disposal schedule attachment: Lined pit reclamation description: Lined pit reclamation attachment: Leak detection system description: Leak detection system attachment: Lined pit Monitor description: Lined pit Monitor attachment: Lined pit: do you have a reclamation bond for the pit? Is the reclamation bond a rider under the BLM bond? Lined pit bond number: Lined pit bond amount: Additional bond information attachment:

PWD disturbance (acres):

Section 3 - Unlined Pits

Would you like to utilize Unlined Pit PWD options? NO

Produced Water Disposal (PWD) Location:

PWD surface owner:

Unlined pit PWD on or off channel:

Unlined pit PWD discharge volume (bbl/day):

Unlined pit specifications:

Precipitated solids disposal:

Decribe precipitated solids disposal:

Precipitated solids disposal permit:

Unlined pit precipitated solids disposal schedule:

Unlined pit precipitated solids disposal schedule attachment:

Unlined pit reclamation description:

Unlined pit reclamation attachment:

Unlined pit Monitor description:

Unlined pit Monitor attachment:

Do you propose to put the produced water to beneficial use?

Beneficial use user confirmation:

Estimated depth of the shallowest aquifer (feet):

Does the produced water have an annual average Total Dissolved Solids (TDS) concentration equal to or less than that of the existing water to be protected?

TDS lab results:

Geologic and hydrologic evidence:

State authorization:

Unlined Produced Water Pit Estimated percolation:

Unlined pit: do you have a reclamation bond for the pit?

Is the reclamation bond a rider under the BLM bond?

Unlined pit bond number:

Unlined pit bond amount:

Additional bond information attachment:

Section 4 - Injection

Would you like to utilize Injection PWD options? NO

Produced Water Disposal (PWD) Location:

PWD surface owner:

Injection PWD discharge volume (bbl/day):

Injection well mineral owner:

PWD disturbance (acres):

PWD disturbance (acres):

Injection well type:

Injection well number:

Assigned injection well API number?

Injection well new surface disturbance (acres):

Minerals protection information:

Mineral protection attachment:

Underground Injection Control (UIC) Permit?

UIC Permit attachment:

Section 5 - Surface Discharge

Would you like to utilize Surface Discharge PWD options? NO

Produced Water Disposal (PWD) Location: PWD surface owner: Surface discharge PWD discharge volume (bbl/day): Surface Discharge NPDES Permit? Surface Discharge NPDES Permit attachment: Surface Discharge site facilities information: Surface discharge site facilities map:

Section 6 - Other

Would you like to utilize Other PWD options? NO

Produced Water Disposal (PWD) Location: PWD surface owner: Other PWD discharge volume (bbl/day): Other PWD type description: Other PWD type attachment: Have other regulatory requirements been met?

Other regulatory requirements attachment:

Injection well name:

Injection well API number:

PWD disturbance (acres):

PWD disturbance (acres):

VAFMSS

U.S. Department of the Interior BUREAU OF LAND MANAGEMENT

Bond Information

Federal/Indian APD: FED

BLM Bond number: NMB000215

BIA Bond number:

Do you have a reclamation bond? NO

Is the reclamation bond a rider under the BLM bond?

Bond Info Data Report

09/28/2018

Is the reclamation bond BLM or Forest Service?

BLM reclamation bond number:

Forest Service reclamation bond number:

Forest Service reclamation bond attachment:

Reclamation bond number:

Reclamation bond amount:

Reclamation bond rider amount:

Additional reclamation bond information attachment:



U.S. Department of the Interior BUREAU OF LAND MANAGEMENT

APD ID: 10400028416

Operator Name: COG OPERATING LLC

Well Name: FEZ FEDERAL COM

3

Well Type: OIL WELL

Submission Date: 03/16/2018



09/28/2018

Well Number: 602H

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Show Final Text

Drilling Plan Data Report

Well Work Type: Drill

Section 1 - Geologic Formations

Formation		ļ,	True Vertical	Measured			Producing
ID	Formation Name	Elevation	Depth	Depth	Lithologies	Mineral Resources	Formation
1	UNKNOWN	3243	0	0		NONE	No
2	RUSTLER	2409	835	835		NONE	No
3	TOP SALT	2068	1176	1176	SALT	NONE	No
4	BOTTOM SALT	-1727	4971	4971	ANHYDRITE	NONE	No
5	LAMAR	-2058	5302	5302	LIMESTONE	NATURAL GAS,OIL	No
6	BELL CANYON	-2090	5334	5334		NONE	No
7	CHERRY CANYON	-3029	6273	6273		NATURAL GAS,OIL	No
8	BRUSHY CANYON	-4489	7733	7733	· · · · · · · · · · · · · · · · · · ·	NATURAL GAS,OIL	No
9	BONE SPRING LIME	-5720	8964	8964	SANDSTONE	NATURAL GAS,OIL	No
10	UPPER AVALON SHALE	-5937	9181	9181		NATURAL GAS,OIL	No
11		-6301	9545	9545		NATURAL GAS,OIL	No
12	BONE SPRING 1ST	-7118	10362	10362		NATURAL GAS,OIL	No
13	BONE SPRING 2ND	-7638	10882	10882		NATURAL GAS,OIL	No
14	BONE SPRING 3RD	-8695	11939	11939		NATURAL GAS,OIL	Yes
15	WOLFCAMP	-9099	12343	12343	SHALE	NATURAL GAS,OIL	No

Section 2 - Blowout Prevention