

**PRESSURE VESSEL DATA:**

COMPANY:	BP CANADA ENERGY COMPANY	LOCATION	BP CHINCHAGA GAS PLANT
FACILITY:	LSD: 01-24-096-05W6M		
VESSEL NAME:	DESICCANT TOWER C (NIS)		
FACILITY VESSEL IDENTIFICATION:	MAINTENANCE NO. (Maximo):		
IS VESSEL ASSOCIATED WITH A COMPRESSOR?	Yes No		
ORIENTATION:	Horizontal Vertical Sphere		
SEPARATOR TYPE (if applicable):	2 Phase 3 Phase N/A		
STATUS:	In Service		
DIRECT FIRED VESSEL:	Yes No		MANWAY:
THERMAL INSULATION:	Internal Access Through:		

NAME PLATE:

JURISDICTION NUMBER :	A0146844	CRN NUMBER:	D3193.2
BP TAG NUMBER:	V-301C	N. BOARD NUMBER:	
VESSEL SERIAL NUMBER:	79-087-05C	CAPACITY (Volume):	NS
DRAWING NUMBER:	NS	CHANNEL MATERIAL:	in. NS N/A
CHANNEL THICKNESS:	in. NS N/A	HEAT TREATMENT:	
CODE PARAMETERS:	U, UW, UM NS	JOINT EFFICIENCY (J.E.):	NS
MANUFACTURER:	KML CUSTOM FABRICATORS	YEAR BUILT:	1979

INSULATION / COATING

INTERNAL COATING				EXTERNAL COATING				INSULATION	
DESCRIPTION	COATED?	THK	TYPE	DATE	COATED?	THK	TYPE	DATE	INSULATED?
	N				N				N

SHELL STATIC

SHELL	MATERIAL	H.T.	NOMINAL	DIAMETER	LENGTH	C.A.	RT LEVEL
SHELL SIDE 1	SA-106B, SA-516-70, SA-53B, SA-516-70N, SA-515-70, Other	N	in / mm	in / mm	in / mm	0.0620 in.	

HEAD STATIC

HEAD	MATERIAL	H.T.	NOMINAL	DIAMETER	C.A.	RT LEVEL
SHELL SIDE 1	SA-106B, SA-516-70, SA-53B, SA-516-70N, SA-515-70, Other	N	in / mm	in / mm	0.0620 in.	

DESIGN / OPERATING

DESIGN DESCRIPTION	DESIGN PRESS.	DESIGN TEMP.	OPERATING PRESS.	OPERATING TEMP.	SERVICE
	PSI / KPa	°F / °C	PSI / KPa	°F / °C	

**PSV NAME PLATE DATA:**

	PSV. 1	PSV. 2	PSV. 3	PSV. 4
Tag Number:	3502			
Serial Number:	79C4012			
Inlet Size - (Rating/Type):	1.5 in			
Outlet Size - (Rating/Type):				
Capacity (SCFM) Or	13444 SCFM			
Model Number:	1914ET			
Manufacturer:	CONSOLIDATED			
Set Pressure:	1375 PSI			
Set Date:				
Location:				
CRN:				
Service Interval:				
Service Company:				

POTENTIAL DAMAGE TYPE AND LOCATION:

Fabrication Defects: Thinning (includes general, localized and pitting): Shell, heads, swirl cage and nozzles. Blistering: Possible throughout the pressure envelope. High Stress Areas: Subject to CO₂, water composition around nozzles, tee joints, attachment and closing welds. Cracking: Subsurface cracking, Metallurgical changes, Dimensional changes (blistering), Blistering (dimensional changes), Material properties changes (hydrogen embrittlement).

POTENTIAL DAMAGE MECHANISMS:

Fabrication Defects: Nothing Unusual Expected
Corrosion: CO₂, Produced Water, Condensate, Chlorides, CUI, High Temperature Metal Dusting, Crevice/under deposit, Chlorides, Suspended Solids, Velocity.
Hydrogen Effects: Blistering, HIC, SOHIC, Sulfide stress cracking, Hydrogen embrittlement and/or laminations
Mechanical Effects: Erosion (thinning), Fatigue (surface connected cracking, subsurface cracking), Corrosion Fatigue (surface connected cracking), Thermal fatigue (surface connected cracking), subsurface cracking, and surface connected cracking, dimensional changes, Overload (dimensional changes, thinning)
Metallurgical & environmental Effects: None Anticipated

PREVIOUS INSPECTION REPORTS:

THE EXTERNAL SURFACE OF THE VESSEL IS PAINTED. NO EVIDENCE OF EXTERNAL CORROSION WAS NOTED.. THE NOZZLES ARE INTACT WITH NO EVIDENCE OF DEGRADATION AND THEREFORE NOTED IN GOOD CONDITION. FLANGES ARE BOLTED PROPERLY AND THERE IS NO EVIDENCE OF LEAKAGE. THE WELDS ARE INTACT AND EVIDENT WITH NO VISUAL DEFECTS OR DEGRADATION. THE PIPING IS INTACT. ALL THE SUPPORTS ARE IN PLACE, SECURE AND FUNCTIONING PROPERLY. THE VESSEL IS PROPERLY SECURED TO THE FOUNDATION. THE GROUND IS IN PLACE AND SECURE. THE PRESSURE AND TEMPERATURE INDICATORS ARE INTACT, LEGIBLE AND OF PROPER RANGE. THE INSTRUMENTATION WAS NOTED IN GOOD CONDITION. THE LADDER AND PLATFORM ARE IN PLACE, SECURE AND PROPERLY ATTACHED. THE SKIRT AND BASE PLATE ASSEMBLIES WERE NOTED IN GOOD CONDITION, NO EVIDENCE OF DEGRADATION OR CORROSION NOTED. THE ASSOCIATED ANCHOR BOLTS APPEAR TO BE IN GOOD CONDITION AT THE TIME OF THIS INSPECTION. THE VESSEL SUPPORTS WERE NOTED IN GOOD CONDITION, NO EVIDENCE OF MECHANICAL DISTORTION, CORROSION OR OTHER FORMS OF DEGRADATION. THE ASSOCIATED ANCHOR BOLTS APPEAR TO BE IN GOOD CONDITION AT THE TIME OF THIS INSPECTION.

INSPECTION METHODS:

UT: Pre-turnaround survey of all TML's identified on the UT drawings. Also thickness readings in areas of corrosion. UT Shearwave: Automated UT scan on all nozzles. For vessel without refractory. MPI (WFMPI): Inspect all Cat "D" welds, 100% of accessible welds (long seams, circ. seams, tee joints, attachment welds and closing head to shell welds). Shear wave if cracking found. VISUAL: Total vessel and associated piping. DIMENSIONAL MEASUREMENTS: If blistering, buckling or deformation found. UT, SWUT, MT, Visual, Metallurgy, Dimensional Measurements (include percentage) as required on inlet & regenerator gas nozzle.

**INSPECTION NOTES:**

2005: INTERNAL: THE INTERNAL SURFACE WAS NOT EVALUATED DURING THE VISUAL INSPECTION.PSV:THE SEALS ON THE PSV ARE INTACT. THE DISCHARGE PIPING IS PROPERLY VENTED TO THE FLARE.EXTERNAL:SHELL CONDITION:THE EXTERNAL SURFACE OF THIS TOWER IS IN GOOD MECHANICAL CONDITION WITH NO EVIDENCE OF CORROSION.THE COATING IS IN GOOD CONDITION WITH NO EVIDENCE OF FAILURE.THE COATING IS CHIPPED AND SCRATCHED.INSTRUMENTATION CONDITION:THE ASSOCIATED INSTRUMENTATION IS IN GOOD WORKING ORDER.INSULATION CONDITION:THE PIPE CLADDING AND INSULATION ARE IN POOR CONDITION WITH DENTS AND HOLES.THE CLADDING IS BADLY DENTED AT THE BOTTOM OF THE VESSEL.NOZZLE CONDITION:THE NOZZLES ARE IN GOOD MECHANICAL CONDITION WITH NO MEASURABLE CORROSION ON THE EXTERNAL SURFACES.THE WEEP HOLES ARE CLEAN AND CLEAR OF PRODUCT AND RUST.THE RE-PADS AND NOZZLE WELDS ARE IN GOOD CONDITION.THE RE-PADS AND NOZZLE COATING IS CHIPPED AND SCRATCHED.FLANGE CONDITION:THE FLANGES AND NPT CONNECTIONS ARE IN GOOD MECHANICAL CONDITION WITH NO EVIDENCE OF MEASURABLE CORROSION.THE FLANGE RATING IS 900 .THE DAVITS ARE IN GOOD CONDITION.PIPING CONDITION:THE PIPING IS THREADED AND BOLTED.THE PIPING IS IN GOOD MECHANICAL CONDITION WITH NO MEASURABLE CORROSION.PIPE SUPPORT CONDITION:THE ASSOCIATED PIPE SUPPORTS ARE IN GOOD MECHANICAL CONDITION WITH NO EVIDENCE OF ANY MECHANICAL DAMAGE OR DEGRADATION.BOLTED PIPE FLANGE CONNECTIONS:THE ASSOCIATED PIPING FLANGE BOLTING AND GASKETS ARE IN PLACE AND TIGHT.THERE ARE SHORT BOLTS ON THE FOUNDATION.THREADED PIPE CONNECTIONS:THE ASSOCIATED THREADED PIPING IS IN PLACE AND TIGHT. FOUNDATION CONDITION:THE TOWER SKIRT, BASEPLATE AND ANCHOR BOLTS ARE IN GOOD CONDITION WITH NO EVIDENCE OF MECHANICAL DETERIORATION.THE TOWER SKIRT IS ANCHORED TO THE CEMENT.THE CONCRETE IS CRACKING.THE GROUND WIRE IS ATTACHED TO THE VESSEL.THERE IS SKIRT ACCESS.

RECOMMENDED INSPECTION INTERVALS:

Next UT Creep Wave:	_____	Years:	_____
Next UT Corrosion Survey:	_____	Years:	_____
Next Internal Inspection:		Years:	
Next External Inspection:	06/15/2010	Years:	5 YEARS
Next PSV Service:	PSV ID:	Bench Test Due:	
	SN 79C4012		12/30/2007