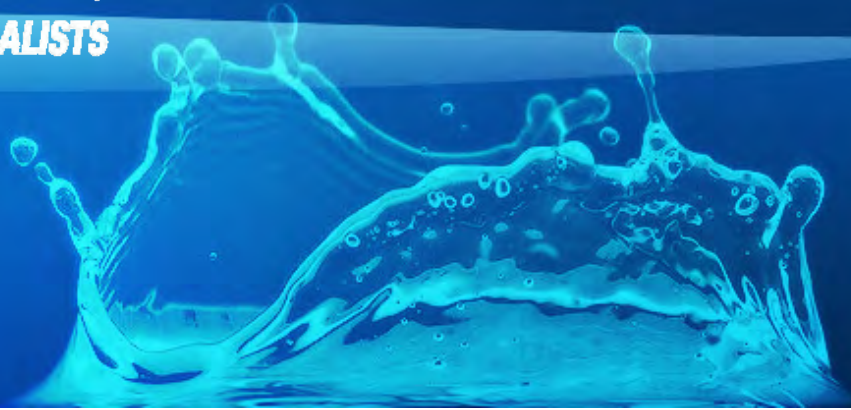




ENVIRO-TECH

SYSTEMS

WASTEWATER SPECIALISTS



CASE HISTORY

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April 22, 2009

Produced Water Handling

CHEVRON High Island 563 (HI-563)
Process Repair & Bypass

ETS Doc No: CH-HI563-CHEVRON.doc

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I. Overview

A. Chevron High Island 563 identified a problem with the existing flotation cell properly treating the overboard produced water discharge. Enviro-Tech Systems was requested to visit the platform to evaluate the existing equipment and to determine the reparability within manufacturer's specifications. A visit to the platform was made and the findings are apart of this technical paper.

II. Objectives

- A. Provide a visit to the platform and evaluate the equipment providing a Wastewater Equipment Survey
- B. Define objective of Chevron personnel and evaluate the parameters of the project.
- C. Review the site for available space, safety considerations and to determine a BOM for hookup.
- D. Pre-JSA with Chevron Personnel and Enviro-Tech Systems personnel.
- E. Conclude project practicality and commercial viable

III. Technical Data

- A. Design flowrate: 15,000 BPD Produced Water
- B. Design Temperature: 100F
- C. Effluent Discharge: 25 ppm (Before Repair)
- d. PPM Meter: Turner Designs Mod # xxxx
- e. Readings: every 2 hours 24 hours daily

IV. Work Activity

- a. Remove Eductors and internal piping
 - b. Remove Anodes
- B. Enviro-Tech Systems crew mobilizes two (2) days in advance of the start of project. (photo-1)
- C. Day 1 begins with a pre JSA and a Platform tour with all personnel involved in the project (photo) Day 1 concludes with a go from Chevron personnel to proceed.
- D. Day 2 begins with hookup of the Enviro-Tech Systems by-pass CPI/IGF combination equipment and the initial diversion of the process flow through the ETS by-pass equipment. Enviro-Tech Systems personnel monitor overboard discharges for the next 12 hours in anticipation of the start of work (photo-2)
- E. Day 3,4,5,6, start disassembly of the existing IGF and the vessel cleaning and installation of the new internal parts (multiple photo's 3,4,5,6,7)
- F. Day 7 Divert the process out of the ETS equipment and back into the newly repaired existing equipment. Additionally ETS personnel provide sampling and testing the effluent from the by-pass equipment and now are monitoring the repaired IGF.
- G. The bypass equipment is cleaned and taken out of service and the process is now flowing through the repaired equipment well within the discharge parameters.
- H. Work Parameters consisting of the following:
- a. Disassemble tank removing top and internal covers
 - b. Remove oil weir
 - c. Clean debris and sludge from tank
 - d. Check for Norm
 - e. Replace all internal parts
 - f. Reassemble tank and place in service

V. Analytical DATA

- A. Sampling data
- B. Graphs of influent vs. effluent

VI. SUCCESS

- A. Project Success
 - 1. Project was carried out without incident or accident
 - 2. Project was carried out without exposing personnel to harsh toxic fumes or other problems associated with the process.
 - 3. Effluent discharge from the newly repaired equipment is lowered and well within the desired results.
- B. Commercial Success
 - 1. Cost to complete Project under \$80K
 - 2. Estimated Production was 2,000 BPD of oil
 - 3. Allowed to process 8,000 BBLS of oil for the duration of the project
 - 4. Savings: \$ 1,000,000

Conclusion:

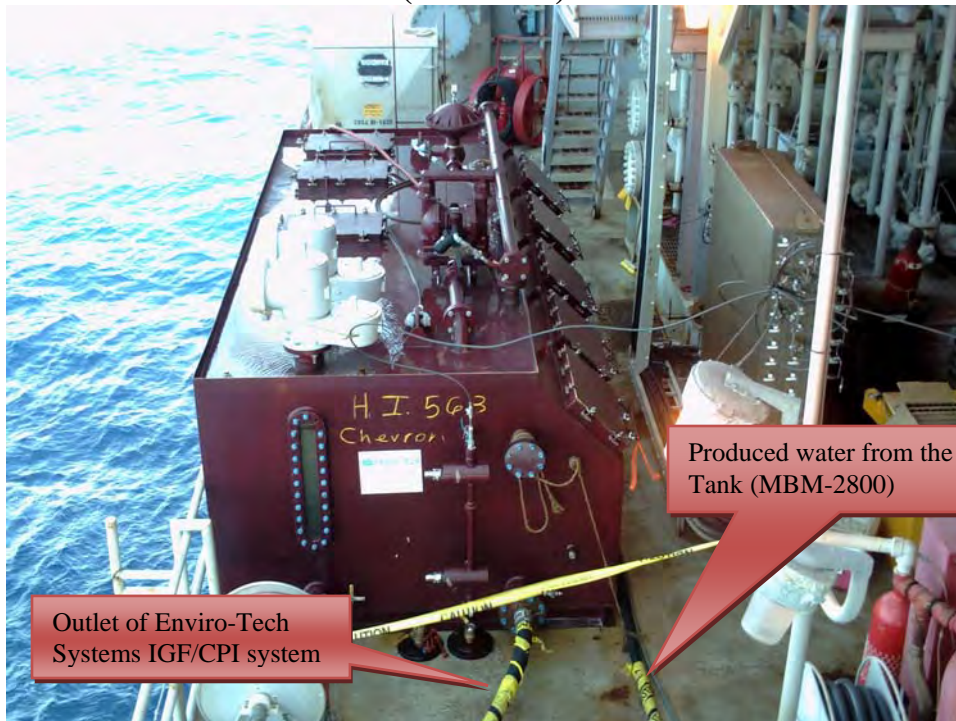
The Enviro-SEP combination CPI /IGF provided the necessary compact treat ability to allow placement on the platform, ease of installation, and easy operability. Because of these features Chevron was allowed to continue flowing (not having to shut-in) the production for the duration of the project. Thus allowing the revenue stream to be uninterrupted with a great commercial savings to Chevron.

(Photo-1)



This photo shows Enviro-Tech Systems crew mobilizing

(Photo-2a)

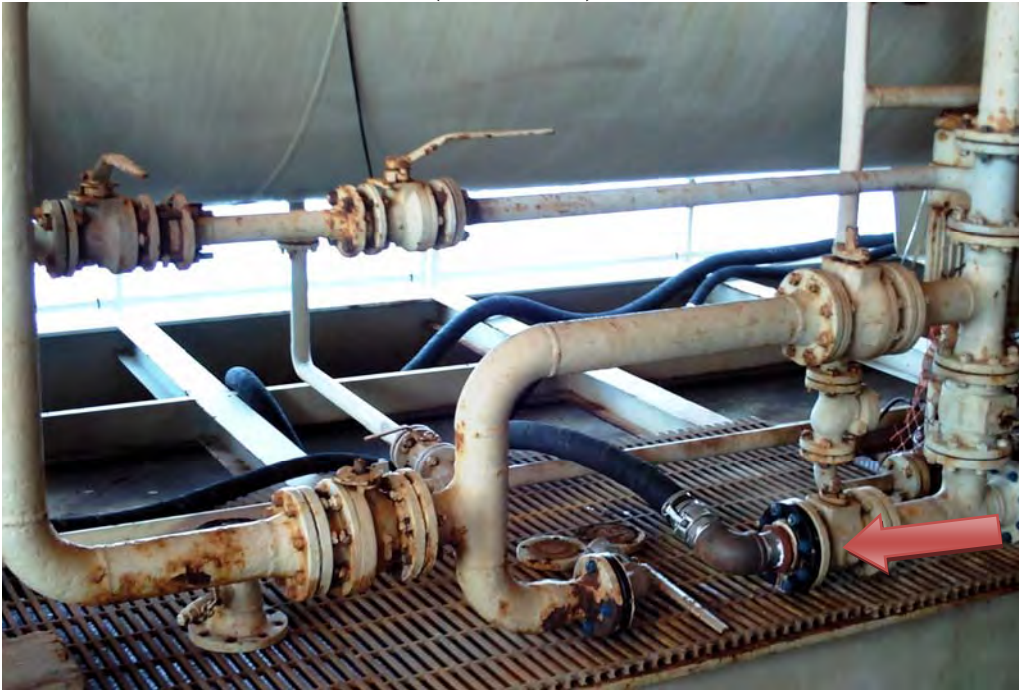


Outlet of Enviro-Tech
Systems IGF/CPI system

Produced water from the Skimmer
Tank (MBM-2800)

Enviro-Tech Systems by-pass CPI/IGF combination Unit

(Photo-2b)



Shows how the Enviro-Tech Systems Team tied into the outlet of the Skimmer tank

(Photo-3)



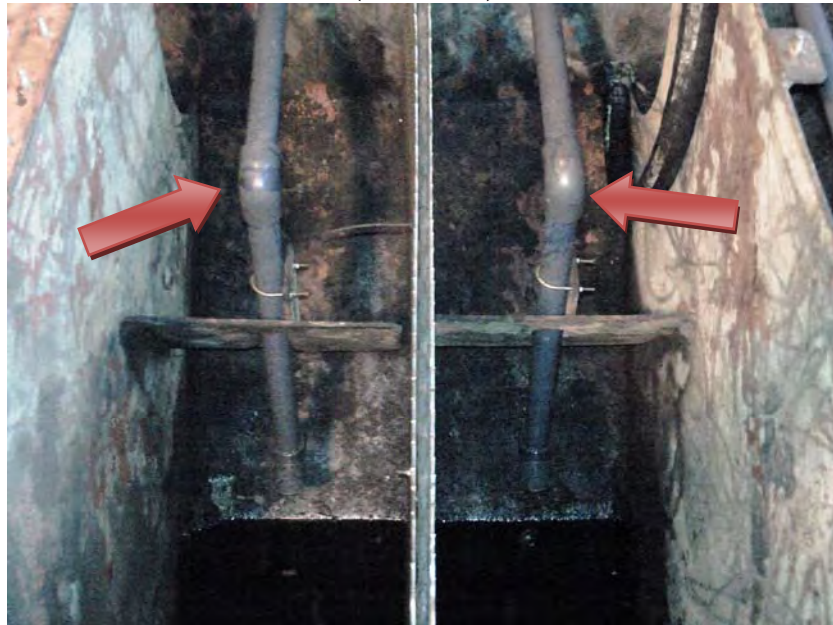
Starting to disassemble the existing IGF

(Photo-4)



*The photo shows the top cover plate removed and the IGF Cleaned by Enviro-Tech
Systems Personnel*

(Photo-5)



This photo shows the installation of the new Eductor system

(Photo-6)



The photograph shows the Enviro-Tech team working to install new internal parts.

(Photo-7)



The picture shows installation of the baffle Plate and Eductors