2020 Annual Production and Safety Report

For

The Fort Liard and Central Mackenzie Valley (Sahtu) Areas
Within
The Northwest Territories

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1. INTRODUCTION

The Annual Safety Report

The Annual Safety Report is required pursuant to Part II Section 87 of the Oil and Gas Drilling and Production Regulations:

The Operator shall ensure that, not later than March 31 of each year, an annual safety report relating to the proceeding year is submitted to the Board and includes:

(a) a summary of lost or restricted workday injuries, minor injuries and safety–related incidents and near-misses that have occurred during the preceding year; and
(b) a discussion of efforts undertaken to improve safety.

This report represents both Paramount Resources and MGM properties.

Liard West Operating Area

This area is not producing, and the production operations have been suspended. Community consultations, suspended well inspections and environmental monitoring was conducted in 2020.

Liard South Operating Area

This area is not producing, and the production operations have been suspended. Community consultations, winter road construction for the well abandonments and site reclamation at Bovie J-76 and Celibeta H-78 wellsites, suspended well inspections and environmental monitoring was conducted in 2020.

Central Mackenzie Valley (Sahtu) Operating Area

This area is not producing. Community consultations, and environmental monitoring was conducted in 2020.

2. OVERVIEW OF DRILLING/SERVICING AND CONSTRUCTION ACTIVITIES FOR THE LIARD AND CENTRAL MACKENZIE VALLEY (SAHTU) AREAS

2.1. ROAD CONSTRUCTION

Constructed Winter Road from Highway 7 to Paramount Anadarko Bovie J-76 and then on to Home Signal CSP Celibeta NO. 2 (H-78).

2.2. DRILLING ACTIVITIES

There were no drilling activities in this area during the 2020 reporting period.

2.3. SERVICE RIG ACTIVITIES

Conducted Abandonment operations at Paramount Anadarko Bovie J-76 from Feb 7, 2020 to Feb 24, 2020.
Conducted Abandonment operations at Home Signal CSP Celibeta NO. 2 (H-78) from Feb 23, 2020 to Mar 10, 2020.

2.4. CONSTRUCTION ACTIVITIES

There were no construction activities in this area during the 2020 reporting period.

3. OVERVIEW OF PRODUCTION OPERATIONS ACTIVITIES FOR THE LIARD AND CENTRAL MACKENZIE VALLEY (SAHTU) AREAS

3.1. SUSPENDED WELL INSPECTIONS

Liard Area:
Suspended well inspections were completed in Liard South, Liard East and Liard West in 2020.

Paramount's 2020 Annual Environment Report submitted on March 30, 2021, identified that the flare stack lights at the K-29 and F-25 well site facilities are not operational and require replacement. When production restarts at these sites, the flarestack lights will be assessed as part of the site reactivation plan as there is no requirement for lighting and the lights are not safety critical equipment.

Central Mackenzie Valley (Sahtu):
Due to Covid-19 restrictions no suspended well inspections were completed.

3.2. OFFICE OF THE REGULATOR OF OIL AND GAS OPERATIONS (OROGO) INSPECTIONS

OROGO officers conducted site inspections at the following sites:

- Bovie J-76-A/Ft. Liard on February 10th Inspection findings were as follows, site is snow covered with no apparent stress on visible vegetation, signs are erected, stable and readable. Well abandoned, cut and capped in March 2009. There were no non-compliance items noted during the inspection.

- Bovie J-76 on February 8th - 10th (2020)- Inspection findings were as follows, crew conducted accumulator and blow out preventer function tests. The function and recharge rates were operating within the specifications, the accumulator pressure gauge on the auxiliary controls required replacement as it did not provide accurate pressure readings during the function test. Paramount was instructed to replace the faulty guage. Equipment certifications (including BOP certifications) were verified on site. The Operations and Well approval was not posted in a common space at the Well Site Supervisor's trailer and could not be located via electronic files. The

OROGO officers provided these approvals during the inspection, in turn they were posted in the common area as required. Boiler and BOP certifications were verified. OROGO officers observed pipe lifting and transfer operations (pipe trailer to racks), it was noted that the stops at the end of the pipe rack were set too low and would not prevent the pipe from rolling off the pipe rack. The lifting operation was stopped and the guards (stops) were raised to the appropriate position. It was identified that the fire rated Kelly hoses between the BOP and the auxiliary accumulator controls only extended 2 metres from the BOP versus the required 7 metres. This was corrected and verified by the OROGO Officers during the inspection. General house keeping, lighting in work spaces, wind indictors visibility and fire extinguisher condition and inspection requirements were all verified for compliance. The OROGO officers verified the calibration records for the gas meter at the pressure tank connected to the flare stack. Training and certification records for the Well Site Supervisor, Rig Manager and Driller were verified. Safety meetings and documentation were verified. Respiratory, gas detection and first aid supplies on site was verified. Site signage was posted as required. Emergency Response Plans were available on site as required. OROGO officers observed a leak on the slip tank of the Rig Supervisor's truck during fueling operations, the operation was stopped and the leak on the fuel transfer pump was repaired, the spill was contained in the snow in the bed of the truck with no visible release to the environment. A catch tray was placed under the truck until the spill in the truck bed was cleaned up. The OROGO officers requested Paramount to continue to remind all staff and contractors using the Bovie Winter Road to call all Km posts and direction of travel. In turn this was tabled regularly at subsequent safety meetings. All non-compliances noted during the inspection were corrected during the inspection except for the faulty pressure gauge. The gauge was replaced and verified by the OROGO Officers during the March 4th inspection at Celibeta No. 2 H-78.

- Celibeta No. 2 H-78 on March 3rd – 5th (2020). Inspection findings were as follows, two accumulator function tests were conducted. The first test was not successful. After the initial activation of the pipe ram a slow but continual bleed off of pressure was noted. An investigation revealed that the pipe ram control in the accumulator shack was not fully actuated causing the pressure to slowly bleed off. The pipe ram actuator was cleaned and lubricated, and a second successful test was conducted and observed by the OROGO Officers. Equipment certifications, approvals, boiler inspections, guards and covers on moving equipment, pumps line and hoses, general house keeping, site lighting, wind indicators and fire extinguishers were all verified for compliance. Training and certifications, safety meetings and documentation, respiratory/first aid and gas detection equipment were all verified for compliance. Communication plans, site signage and Emergency Response plans were are all verified for compliance. Blow Out prevention equipment (BOP) certifications, pressure ratings, BOP crew drills and the securement of flow lines and choke lines were all verified for compliance. Environmental equipment and measures were also verified for compliance. There were no non-compliance items noted during the inspection.
- Further on March 3rd, 2020 the J-76 well site was inspected there were no issues noted and the site was deemed to have been left in a compliant state.

4. SUMMARY

Employer's Annual Hazardous Occurrence Report submitted to Human Resources and Skills Canada on March 25th, 2021 and the annual safety statistics summary has been submitted to GNWT WSCC on March 31st, 2021.

4.1. SUMMARY OF LOST OR RESTRICTED WORKDAY INJURIES

EVT104835 – February 12th, 2020 Bovie J-76-60-20-122-45 – Property Damage – Lost Time Injury Incident – Reported to and investigated by Paramount and independently by the Office of the Regulator of Oil and Gas (OROGO) – File Reference – INC-2020-003-PAR-OA-2018-004, NM-2020-002-PAR-OA-2018-004 and INC-2020-002-PAR-OA-2018-004.

Events of the incident and near-miss & injury mechanisms:
During abandonment operations, a power swivel on a single service rig was being utilized to mill out a permanent bridge plug at shallow depth (50m). The downhole pressure under the plug caused the drilling string to hydraulic and lift out of the hole. As a result, the Kelly hose whipped on the rig floor damaging 2 handrails, and the joint of 2-7/8 pipe was bent due to the upward motion of the tubing from the well contacting the weight of the travelling blocks and power swivel.
Following a brief work stoppage and hazard assessment meeting with the site Supervision the decision to restart work to repair the damaged tubing was made. With the Rig Manager and the Company's Wellsite Supervisor standing on the rig work floor in front of the v-door, the crew proceeded to pick up the blocks and unlock the pipe rams. At this time the drill string moved on its own, lifting approximately 2.5m out of the well, and an unknown amount of gas and fluid was released from the open casing valve on the Operator's side. The unsecured Kelly hose with the 2-inch valve began to violently whip around on the work floor, where it grazed the Rig Manager and contacted Paramount's Wellsite Supervisor, knocking him down the v-door stairs on to the catwalk causing a serious injury.

Root causes & causal factors:
All the hazards were not reassessed prior to the decision to move forward with the damaged tubing removal. There were also no written procedures available for the workers on how to safely remove the damaged tubing, and the CAODC Blowout Prevention practices/training was not followed. Failure to accurately assess the risk associated with milling a bridge plug at shallow depth leading to use of inadequate equipment and procedures for the actual risk. Pressure under the bridge plug was assumed to be bled off, or zero, when unknown to the crew, pressure remained trapped under the bridge plug. Hazards associated with installing the 2-inch ball valve on the end of the Kelly hose and leaving it open to monitor the well conditions, leaving the Kelly hose unsecure and the casing valve open, removing the damaged tubing, and the position of the Rig Manager and Wellsite Supervisor on the work floor while attempting to move the damaged tubing were not properly assessed.

Efforts taken to mitigate recurrence and Lessons learned: The following efforts were implemented to help improve safety: enhancements to program planning to ensure effective communication and implementation of risk controls, a procedure for milling plugs was drafted and implemented by the well servicing company.

Any deviation from normal operations will require review with the Project Engineer/Manager and each level of Company management, as deemed necessary, to ensure the hazards are properly mitigated before proceeding. The Company's safety culture was reinforced with site supervisors (stressing the importance of stop work authority and hazard assessment) and finally, a lessons learned bulletin was published internally and externally for industry sharing. OROGO conducted a third-party review of this incident and also issued a safety bulletin to industry.

4.2. MINOR INJURIES AND SAFETY RELATED INCIDENTS

EVT104296 – January 16th, 2020 - NWT Celibeta H-78 road access – Grader engine oil leak – est. 250ml cleaned up. The incident was reviewed at subsequent shift meetings with an emphasis and reminder for operators to be vigilant when checking and maintaining their machinery, in addition the third-party equipment operator installed drip trays to be in place when equipment is stationary and left to idle over night.

EVT104676 – February 26th, 2020 – NWT – Region One – Bovie Road KM 23 – Paramount Camp – First aid injury – Camp cook tripped over a box of potatoes that were resting on the floor. The worker fell bumping her head on the dolly and her elbow on the floor. Worker was assessed by the on-site medic, some minor abrasion and tenderness. The incident was reviewed at subsequent shift meetings and the third-party camp services followed up with their staff regarding their policies and work practices aimed at preventing slips, trips and falls.

EVT109078 – February 9th, 2020 – NWT – Bovie J-76 – Near Miss –
Events of the near-miss & injury mechanism: During refueling operations from the bulk fuel storage tank using a large volume hose a worker was sprayed with diesel fuel. The worker did not sustain any injuries.

Root causes & causal factors:
The incident illustrates the importance of utilizing the appropriate equipment for the task (smaller volume hose).

Efforts taken to mitigate recurrence and Lessons learned: To improve safety the incident was reviewed at subsequent shift meetings and prevention measures were implemented by the third-party fuel delivery service that included revisions to the fuel transfer and delivery procedures and refresher training on the fuel handling procedures with the worker. Revised site procedures included the requirement to have fuel delivered to the site to a bulk storage tank and a slip tank is to be used to transfer bulk fuel to the equipment, this eliminates the use of a larger volume transfer hose. OROGO NM-2020-001-PAR-OA-2018-004.

EVT109079 – OROGO INC-2020-001-PAR-OA-2018-004 -February 10th, 2020 – NWT – Bovie J-76 – Equipment failure –

Events of the incident/near-miss:
On Feb 9, 2020 the annular preventer was stump tested and installed on the well as part of the Blow Our Preventer Stack. All pressure tests passed.

On Feb 10, 2020 a milling Bottom Hole Assembly (BHA) was picked up and run into the well the annular was closed and circulation was initiated. During this operation a leak was noticed at the annular tattle tale indicating an annular preventer sealing element leak. Due to the leak the BHA was pulled out of the well and the well secured with the blind rams.
On Feb 11, 2020 a replacement annular preventer was received at location installed and pressure tested. All pressure tests passed.

Root cause, Causal factors and Injury Mechanisms:
The most recent recertification / in-service date of the BOP was completed on June 14th, 2017, High Arctic Energy Services in accordance with the recommended practice COADC RP 6. The certification is valid for 3 years. This BOP was within its valid recertification period.

The leak discovered through the tattle tale on Feb 10 was interpreted to be a potential integrity issue with the annular BOP.

A report from High Arctic Energy Services on Feb 20, 2020 determined a ½" NPT plug was missing from a Passage hole in the Annular preventer. This missing plug was the cause of the leak.

Corrective actions taken:
As soon as the tattle tale identified the leak, circulation was stopped and the well secured with the blind rams. Another Annular preventer was ordered and installed. Once installed all the pressure tests passed and work continued.

Lessons Learned: and
The initial pressure test was successful but monitoring the tattle tale identified a problem with the Annular Preventer.

Efforts undertaken to mitigate recurrence of these events:
Reinforce the maintenance procedures for the Blow-out preventer and related equipment. Inspect the BOP Components as required by company policy and COADC standard practices. Continue pressure testing BOP components to ensure integrity prior to initiating operations. Stop work while redundant components remain operable and repair redundant equipment prior to continuing with operations.

4.3. TOTAL PERSON-HOURS

Total person-hours worked, both employee and contractor, in 2020 – 16, 894 person-hours:
Liard Area: 16,862 person-hrs
Central Mackenzie Valley (Sahtu): 32 person-hours