PROPOSED LYLETON UNIT NO. 1

Application for Enhanced Oil Recovery Waterflood Project

Lower Amaranth Formation

Lower Amaranth B (07-29B)

Pierson Field, Manitoba

April 30, 2024
MRL 2 Ltd.

Section

INTRODUCTION

The Pierson Oil Field is located in Townships 1, 2 and 3, Ranges 27 ,28 and 29 W1M (Figure 1). The Waskada Lower Amaranth Oil pool was discovered in June 1980 when Omega Hydrocarbons recompleted a former Mississippian producer in the stratigraphically higher Lower Member of the Amaranth Formation. Lower Amaranth Production expanded into the Pierson Field. Recent advancements in completion technology have expanded the Lower Amarnath Reservoir. Secondary recovery through waterflood has been initiated throughout much of the Waskada Pool. It has also been very successful in South Pierson Units Nos. 1 & 2. Building on these successful projects MRL 2 Ltd. proposes to extend the waterflood technique into the South Central Pierson Field.

In the South Central part of the Pierson field near the town of Lyleton, potential exists for increased production and reserve recovery through a Waterflood Enhanced Oil Recovery (E O R) project in the Lower Amaranth Oil Reservoir. The following documentation is an application by MRL 2 Ltd. to establish Lyleton Unit No. 1 (The West Half of Section 26, Township 1, Range 28 West of the first Meridian LSDs – 3,4,5,6,11,12,13&14) to implement a Waterflood EOR scheme within the Lower Amaranth Formation.

The proposed project area falls within the existing designated 07-29B Lower Amaranth B Pool of the Pierson Oilfield (Figure 3).

SUMMARY

1. The proposed Lyleton Unit No. 1 will include 8 horizontal wells and 1 vertical well within 8 Legal Sub Divisions (LSD) of the Lower Amaranth producing reservoir residing on the West half of Section 26-1-28W1 (Figure 2).

2. Total Net Original Oil in Place (OOIP) in Lyleton No. 1 has been calculated to be **956.3** e^3m^3 (6,015 Mbbl) for an average of **119.5 net e^3m^3** {751.9 Mbbl) OOIP per 40 acre LSD based on a 0.5 mD cutoff for the Green to Red Sands.

3. Cumulative allocated production to the end of February 2024 from the 9 wells within the proposed Lyleton Unit No.1 project area was **55.1** e^3m^3 (346.6 Mbbl) of oil, representing a **5.8%** Recovery of the Net OOIP.

4. The production from the proposed Lyelton Unit No. 1 peaked in December 2018 at 44.8 m^3 oil per day as shown in Figure 4. As of February 2024, production was 11.5 m^3 OPD, 24.62 m^3 of water per day water per day, which is a 68.1% watercut.

5. In August 2020, production averaged 14.3 m^3 OPD per well in Lyleton Unit No. 1. As of June 2023, average production has declined to 4.54 m^3 OPD. Decline analysis of the group primary production data forecasts total oil to continue declining at an annual rate of approximately **23.8%** in the project area.

6. Estimated Ultimate Recovery (EUR) of primary production oil reserves in the proposed Lyleton Unit No. 1 project area has been calculated to be **67.4** e^3m^3 (**424.3** Mbbl), with **12.3** e^3m^3 (**77.6** Mbbl) remaining as of the end of February 2019.

7. Ultimate oil recovery of the proposed Lyleton Unit No. 1, under the current Primary Production method, is forecasted to be **7.1%.**

8. Estimated Ultimate Recovery (EUR) of proved oil reserves under Waterflood EOR for the proposed Lyleton Unit No. 1 has been calculated to be **143.0** e^3m^3 (**898.8** Mbbl), with **87.8** e^3m^3 (**552.1** Mbbl) remaining. An incremental **75.5** e^3m^3 (475.0 Mbbl) of proved oil reserves, or **7.9%,** are forecasted to be recovered under the proposed Unitization and Waterflood EOR Production vs the existing Primary Production method.

9. The Total recovery factor under Secondary EOR in the proposed Lyleton Unit No. 1 is estimated to be **14.9%.**

10. Based on the waterflood response in the Pierson and Waskada fields, the Lower Amaranth Formation in the proposed project area is believed to be a suitable reservoir for Waterflood EOR operations.

11. Existing horizontal wells, with multi-stage hydraulic fractures, will be converted to injection to provide waterflood support to existing horizontal/vertical producing wells within the proposed Lyleton Unit No. 1 to complete the waterflood pattern.

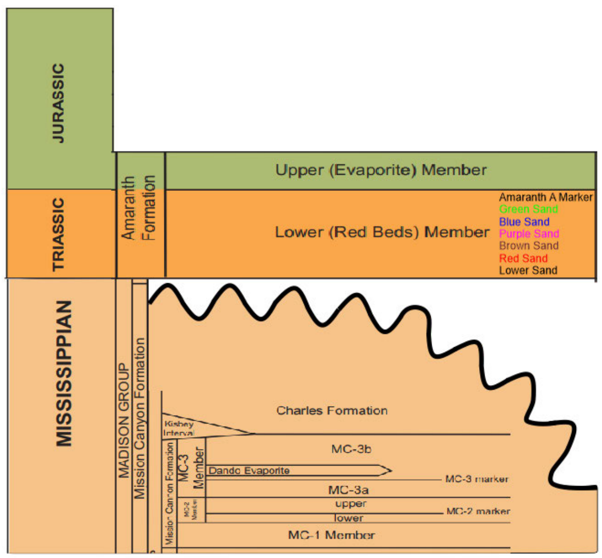
RESEVOIR PROPERTIES AND TECHNICAL DISCUSSION

GEOLOGY

Stratigraphy:

The Lower Amaranth is Triassic aged and is bound by the lower Mississippian unconformity Anhydrityc cap and above in is the Upper Amaranth beds which is derived of anhydrite and tight limestone.
The productive intervals in this area come from Green Sand down into the uppermost portion of the Lower Sand. Geolocigally, this section is collectively called the Waskada unit. These units are a general industry-created nomenclature and are in descending order of:

- Lower Amaranth
- A marker
- Green Sand
- Blue Sand
- Purple Sand
- Brown Sand
- Red Sand
- Lower Sand



Sedimentology:

The Lower Amaranth units are comprised of a series of siltstone to fine-grained quartzose as it is sometimes described. These sub-units are generally correlated with very thin anhydritic evaporite layers between each sub-unit. Overall, the productive area is comprised of a series of thin lenses, with varying degrees of correlatability. The series of beds are generally described as having a fining upward, with the anhydrite as the base or a cap of each set.

Depositional Environment:

The depositional environment has been interpreted as a time when this area was a tidal flat or a sabkha or subject to seasonal or sub-seasonal flooding. The sand grain size and the anhydritic deposition all represent the source and energy at the time of deposition. The region appears to have good correlation over the southern Manitoba area. Over section 26-1-28W1 the wells are quite correctable, or contiguous, as it is not a large area. The area deposition has been described as a time of sea level rise or a series of transgressions, ultimately ending in a major rise and the deposition of the Upper Amaranth anhydrite the end of major sedimentation influx from the margins of the basin.

Reservoir Barriers:

The reservoir appears to have very thin upper and lower anhydritic binding units as well as a series of thin cross-stratified beds, that could represent some shallow channel deposits, or a tidal flat. These channel deposits are discontinuous and become obliterated with the end of a cycle and the deposition of the next evaporitic layer. As well the entire Amaranth Formation is bound by anhytritic upper and lower seals.

There are limited lateral barriers to reservoir continuity that are apparent from the data available. Available data from well logs do not show any apparent lateral facies changes within the proposed unit that would result in significant lateral permeability barriers. An Isopach map of the reservoir interval (Appendix 4) shows that the reservoir thickness remains consistent from 9 to 15 meters.

Also, as mentioned above, there are no indications of any structural features that could set up any lateral permeability barriers within the proposed unit. The lack of lateral permeability barriers suggests this pool is well suited for secondary oil recovery.

Structure:

The supplied structure contour map (Appendix 5 and 4) represents the observed current sub sea elevation of the top of the Lower Amaranth, top of the Green Sand and base of the noted reservoir which includes part of the Lower sand. This current elevation is very typical across the northeast margins of the Willison basin and dips to the Southwest slightly with a strike in this area of about 135°.

Reservoir Quality and Characteristics

The net pay for this area was compiled through wireline logs and horizontal wells. Porosity for the area was calculated from the publicly available logs which include various generations of sonic, sonic corrected by the wireline operator and porosity calculated logs using the standard conversion methods as well as cross checked with cores.

$$\text{Sonic porosity} = \frac{\Delta t - \Delta t\text{martix}}{\Delta t\text{ water} - \Delta t\text{ matrix}}$$

- Δt = sonic travel time (log observed μs/m)
- Δt matrix = travel time of the rock matrix (SS sonic transit time 182μs/m (slumbered Por-3m charts)
- Δt water(fluid) = 620μs/m very little gas effect in this OOIP reservoir
- As well the industry standard sonic conversion charts were used and in this case it was the Slumberger Por-3 charts.
- The immediate area has very few vertical penetrations and only one, with Core Analysis, (5-22-1-27) the core analysis was used to back check Sonic log porosity calculations and provided a greater level of accuracy.

OOIP and Methodology

Standard OOIP calculation was used for this project, the use of logs, regional knowledge, well productivity, Core Analysis, catalogued water values and resistivity were all incorporated to generate a OOIP estimation.

$$\text{OOIP} = 7758\ Ah\phi(1\text{-}Sw)/\ Boi$$

A=320 acres
H= 5-15m (16-49ft)
ϕ = ave 14.5%
(1-Sw) Sw =50-70% (Decimal)

Sw is calculated with the standard archie equation catalogue water and corrected Rt

$$S_w = C * (R_w/R_t/Por)^{1/2}$$

Sw = Saturation of Fm water C = Constant = 0.9(sand)
Rw= Reservoir water 0.075 catalogue Rt
Wireline resistivity (3-9ohm-m) -observed
Por = Porosity (ϕ) - observed/Calculated

Core Analysis was not completed on any wells in this section. However, Core Analysis in the adjacent section with the Core Saturation was completed and is helpful in determining water saturation. Core saturation is a good method, but deriving an absolute fluid composition is not as reliable as we would like. The nature of core recovery, transport, time and final analysis all add to the variability of the result.

All the calculations on this area have been conducted in-house, empirical data helped derive the saturation decline in the southern portions of the area.

Historical Production

A historical group production history plot for the proposed Lyleton Unit No. 1 is shown as Figure 4. Oil production commenced from the proposed Unit area in August 1983. Significant production did not occur from the area until horizontal multi-stage fracturing became normal practice and development started in 2011, Production peaked in December 2018 at 44.8 m^3 oil per day as shown in Figure 4. As of February 2024, production was 11.5 m^3 OPD, 24.62 m^3 of water per day which is a 68.1%watercut.

From peak production in December 2018 to date, base oil production is declining at an annual rate of approximately **23%** under the current Primary Production method.

The remainder of the field's production and decline rates indicate the need for pressure restoration and maintenance. Waterflooding is deemed to be the most efficient means of secondary recovery to introduce energy back into the system, thus increasing production and recovering additional oil from the area.

UNITIZATION

Unitization and implementation of a Waterflood EOR project is forecasted to double overall recovery of OOIP from the proposed project area.

Unit Name

MRL 2 Ltd. proposes that the official name of the new Unit shall be Lyleton Unit No. 1.

Unit Operator

MRL 2 Ltd. will be the Operator of record for Lyelton Unit No. 1.

Unitized Zone

The Unitized zone to be Waterflooded in Lyleton Unit No. 1 will be the Lower Amaranth formation.

Unit Wells

The 8 horizontal wells and 1 vertical well to be included in the proposed Lyleton Unit No. 1 are outlined below.

UWI	License #
100/13-26-001-28W1/02	4242
102/14-26-001-28W1/00	11043
100/14-26-001-28W1/00	7806
100/11-26-001-28W1/00	11042
102/05-26-001-28W1/00	11299
100/05-26-001-28W1/00	8847
102/04-26-001-28W1/00	8846
100/04-26-001-28W1/00	8845
100/03-26-001-28W1/00	11966

Unit Lands

The Lyleton Unit No. 1 will consist of 8 LSDs as follows:

- NW Section 26, Township 1, Range 28 West of the first Meridian, LSDs 11, 12, 13 and 14
- SW Section 26, Township 1, Range 28 West of the first Meridian, LSDs 3, 4, 5 and 6

The lands included in the 40 acre tracts are outlined in Table 1.

Tract Factors

The proposed Lyleton Unit No. 1 will consist of 8 Tracts based on the 40 acre LSDs containing the existing 8 horizontal and 1 vertical well.

The Tract Factor contribution for each of the LSDs within the proposed Lyleton Unit No. 1 was calculated as follows:

- Gross OOIP by LSD, minus cumulative production to date for the LSD as distributed by the LSD specific Production Allocation (PA)% in the applicable producing horizontal or vertical well (to yield Remaining Gross OOIP)

- Last twelve (12) months production to date for the LSD as distributed by the LSD specific PA% in the applicable producing horizontal or vertical well.

- Tract Factor by LSD = Fifty percent (50%) of the product of Remaining Gross OOIP by LSD as a % of total proposed Unit Remaining Gross OOIP, and fifty percent (50%) of the product of the Last 12 Months Production as a percent of total proposed Unit Last 12 Months Production.

Tract Factor calculations for all individual LSDs based on the above methodology are outlined within Table 2. In the past, multiple methods of assigning tract participation factors have been used in the area. MRL 2 Ltd. believes that the method provided above has become the area standard. This method provides the most equitable assignment of tract participation factors to all mineral owners, given the geological, reservoir and well completion risks associated with waterflooding horizontal to horizontal wellbores in Lower Amaranth formation.

Working Interest Owners

Table 1 outlines the working interest (WI) for each recommended Tract within the proposed MRL 2 Ltd. holds a 100% WI ownership in all the proposed Tracts.

MRL 2 Ltd. has a 100% WI in the proposed Lyleton Unit No 1.

WATERFLOOD EOR DEVELOPMENT

Technical Studies

The waterflood performance predictions for the proposed Lyleton Unit No. 1 Lower Amaranth project are based on internal engineering assessments, as well as empirically observed waterflood performance in nearby waterflood units. MRL 2 Ltd. has analyzed the waterflood responses from North Pierson Unit No. 2, South Pierson Unit No. 4, South Pierson Unit No 1 and South Pierson No 2. The existing waterfloods have up to 40 years of data. The floods have experimented with different injection schemes, vertical injector and vertical producers, vertical injectors and horizontal producers and horizontal injectors and horizontal producers. The floods have all been successful in increasing cumulative oil production. The floods have utilized source water from different zones and treated produced water.

Horizontal Injection Wells and EOR Development

Primary production from the proposed Lyleton unit No. 1 was developed with horizontal multi-stage fractured wells. The area was developed with half mile horizontal legs on 40 acre spacings. 40 acre spacing equates to approximately 200 m between the well bores. Primary development is complete in Lyleton Unit No. 1.

MRL 2 Ltd. believes 40 acre spacing is ideal for horizontal injection to horizontal production. As such three wells will be converted from production to injection. The wells will be cleaned out and each frac will be selectively stimulated. Selective stimulation will ensure each fracture is connected to the reservoir which will enhance equal pressurization of the Lower Amaranth reservoir. Equal pressurization decreases the potential for channeling and increases the effectiveness of the waterflood.

MRL 2 Ltd. will monitor injection pressures, injection rates, reservoir pressure, fluid production and decline rates in the pattern to optimize performance.

Reserves Recovery Profiles and Production Forecasts

The primary waterflood performance predictions for the proposed Lyleton Unit No. 1 are based on oil production decline curve analysis. The secondary predictions are based primarily on internal engineering analysis. The engineering analysis focused on voidage replacement, current reservoir pressure and empirical data from existing offset projects.

Primary Production Forecast

Cumulative allocated production to the end of February 2024 from the 9 wells within the proposed Lyleton Unit No.1 project area was **55.1** e^3m^3 (346.6 Mbbl) of oil, representing a **5.8%** recovery of the Net OOIP.

Ultimate Primary Production oil reserves recovery for Lyleton Unit No. 1 has been estimated to be **67.4** e^3m^3 or a **7.1%** recovery of OOIP. Remaining primary production reserves has been estimated to be **12.3** e^3m^3 to the end of February 2024.

Estimated Ultimate Recovery (EUR) of oil reserves under Waterflood EOR for the proposed Lyleton Unit No. 1 has been calculated to be **143.0** e^3m^3 **(898.8** Mbbl), with **87.8** e^3m^3 **(552.1** Mbbl) remaining. An incremental **75.5** e^3m^3 (475.0 Mbbl) of oil reserves, or **7.9%,** are forecasted to be recovered under the proposed Unitization and Waterflood EOR production vs the existing Primary Production method. The total recovery factor under Waterfood EOR in the proposed Lyleton Unit No. 1 is estimated to be **14.9%** of OOIP.

The expected production decline and forecasted cumulative oil recovery under continued Primary Production is shown in Figure 5.

Timing for Conversion of Horizontal Wells to Water Injection

Upon approval of the enhanced oil recovery waterflood application and unitization, MRL 2 Ltd. will commence conversion of the production wells to injection wells. MRL 2 Ltd. anticipates the timing to the third quarter of 2024.

Conversion to Water Injection Well

MRL 2 Ltd. has monitored production rates and static bottom hole pressures in the proposed Lyleton Unit No. 1. Static bottom hole pressures have declined to 1,600 – 2,400 Kpa. Production in the unit has declined 74% from a peak of 44.8 m3 (OPD) in December of 2018 to 11.5 m3 (OPD) in February 2024. The wells converted to injection will create a pattern of producer, injector, producer. As such the following three wells are ready for injection conversion; 100/14-26-1-28W1, 102/5-26-1-28W1 and 102/4-26-1-28W1

The above pattern allows for the proposed Lyleton Unit No. 1 project to be developed equitably, efficiently, and start the waterflood as quickly as possible. It also provides the Unit Operator flexibility to manage the reservoir conditions and respond to the conditions to ensure maximum recovery of reserves.

Injection wells for the proposed Lyleton Unit No. 1 will be converted from declined and depressurized production wells. The wells are horizontals and have been completed with multi-stage fractures. The wells will be cleaned out, selectively stimulated and configured down hole for injection as shown in Figure 7.

All injection wells will be equipped with injection volume metering and rate/pressure control. An operating procedure for monitoring water injection volumes and meter balancing will also be utilized to monitor the entire system for volume measurement and integrity on a daily basis.

The proposed Lyleton Unit No. 1 horizontal water injection well rate is forecasted to average 10 - 40 m^3 water per day, based on expected reservoir permeability and pressure.

Estimated Fracture Pressure

Completion data from the existing producing wells within the project area indicate an actual fracture pressure gradient range of 17.0 to 18.0 kPa/m true vertical depth (TVD).

WATERFLOOD OPERATING STRATEGY

Water Source

The proposed injection water for the Lyleton Unit No.1 is from a source well at 16-27-1-28W1. The existing 106/15-26-1-28W1, non- productive Mission Canyon producer will be converted into the 100/16-27-1-28W1 Swan River Source Well. The Swan River source water from 100/16-27-1-28W1 is delivered directly to the Injection Wells. An electric submersible pump in the source well will generate the pressure needed to supply the injection system. A diagram of the source to injection system is shown in Figure 6.

Based on past experience, MRL 2 Ltd. does not believe that the produced Lower Amaranth water can be cleaned to the required specifications. Evidence of this is the North Pierson No 2 unit that was unable to replace voidage due to fouling of the injection well. Therefore, MRL 2 Ltd. plans to use source water from the Swan River Formation to supply Lyleton Unit No 1.

Produced waters from the Lower Amaranth has been extensively tested for compatibility with Swan River Source water, by qualified third party Labs. Swan River Source water is utilized in all the Waskada Lower Amaranth Waterfloods and the South Pierson Unit No. 4. All potential mixture ratios between the two waters, under a range of temperatures, have been simulated and evaluated for scaling and precipitate producing tendencies. Testing of multiple scale inhibitors has also been conducted and minimum inhibition concentration requirements for the source water volume determined. MRL 2 Ltd. plans to utilize continuous scale inhibitor into the source water stream out of the Source Well to the injection wells. Routine sampling and analysis of the source water will be part of the waterflood maintenance program.

All new water injection wells are surface equipped with injection volume metering and rate/pressure control. An operating procedure for monitoring water injection volumes and meter balancing will also be utilized to monitor the entire system for volume measurement and integrity on a daily basis.

Reservoir Pressure

No representative initial pressure surveys are available for the proposed Lyleton Unit No. 1 project area in the Lower Amaranth producing zone. The extremely long shut-in and build-up times required to obtain a representative reservoir pressure were economically prohibitive at the time of drilling these locations. The Lower Amaranth is assumed to be normally pressured and has initial reservoir pressures of 8600-9600 Kpa.

Reservoir Pressure Management during Waterflood

MRL 2 Ltd. expects it will take 2-4 years to re-pressurize the reservoir due to cumulative primary production voidage and pressure depletion. Initial monthly Voidage Replacement Ratio (VRR) is expected to be approximately 5 to 10 within the patterns during the fill up period. As the cumulative VRR approaches 1, target reservoir operating pressure for waterflood operations will be 75-90% of original reservoir pressure.

Waterflood Surveillance and Optimization

Lyleton Unit No. 1 response and waterflood surveillance will consist of the following:

- Regular Production well rate and WC testing.
- Daily water injection rate and pressure monitoring vs target.
- Water injection rate/pressure/time vs. cumulative injection plot.
- Reservoir pressure surveys as required to establish pressure trends Pattern VRR.
- Potential use of chemical tracers to track water injector/producer responses.
- Use of some or all of: Water Oil Ratio (WOR) trends, Log WOR vs Cum

  Oil, Hydrocarbon Pore Volumes Injected, Conformance Plot.

The above surveillance methods will provide an increasing understanding of reservoir performance and provide data to continually control and optimize the Lyleton Unit No. 1 waterflood operation.

Controlling the waterflood operation will significantly reduce or eliminate the potential for out-of-zone injection, undesired channeling, water breakthrough, or migration. The monitoring and surveillance will also provide early indicators of any such issues so that waterflood operations may be altered to maximize ultimate secondary reserves recovery from the proposed Lyleton Unit No. 1.

On Going Reservoir Pressure Surveys

Any pressures taken during the operation of the proposed unit will be reported within the Annual Progress Reports for Lyleton No. 1 as per Section 73 of the Drilling and Production Regulation.

Economic Limits

Under the current Primary Recovery method, existing wells within the proposed Lyleton No. 1 will be deemed uneconomic when the net oil rate and net oil price revenue stream becomes less than the current producing operating costs. With any positive oil production response under the proposed Secondary Recovery method, the economic limit will be significantly pushed out into the future. The actual economic cut off point will then again be a function of net oil price, the magnitude and duration of production rate response to the waterflood, and then current operating costs. Waterflood projects generally become uneconomic to operate when Water Oil Ratios (WOR's) exceed 100.

WATER INJECTION FACILITIES

The Lyleton Unit No. 1 waterflood operation will not utilize a traditional water injection facility. Alternatively, the source water will be produced directly from the source well down the injection wells via a short high pressure pipeline system. Utilizing an electric submersible pump in the source well to generate the required pressure makes this system possible. This source to injection concept makes secondary recovery less infrastructure and capital intensive. Thus, it can be deployed on smaller land packages.

The source to injection system is laid out in Figure 6. A complete description of all planned system design and operational practices to prevent corrosion related failures are shown in Figure 8.

NOTIFICATION OF MINERAL AND SURFACE RIGHTS OWNERS

MRL 2 Ltd. is in the process of notifying all mineral rights and surface rights owners of the proposed EOR project and formation of Lyleton Unit No. 1. Copies of the notices and proof of service, to all surface and mineral rights owners will be forwarded to the Petroleum Branch when available, to complete the Lyleton Unit No. 1.

Lyleton Unit No. 1 Unitization, and execution of the formal Lyleton Unit No. 1 Agreement by affected Mineral Owners, is expected during Q3 2024. Copies of same will be forwarded to the Petroleum Branch, when available, to complete the Lyleton Unit No. 1 Application.

Should the Petroleum Branch have further questions or require more information, please contact Greg Barrows, 204-522-5132 or by email at gbarrows@melitaresources.com.

MRL 2 Ltd.

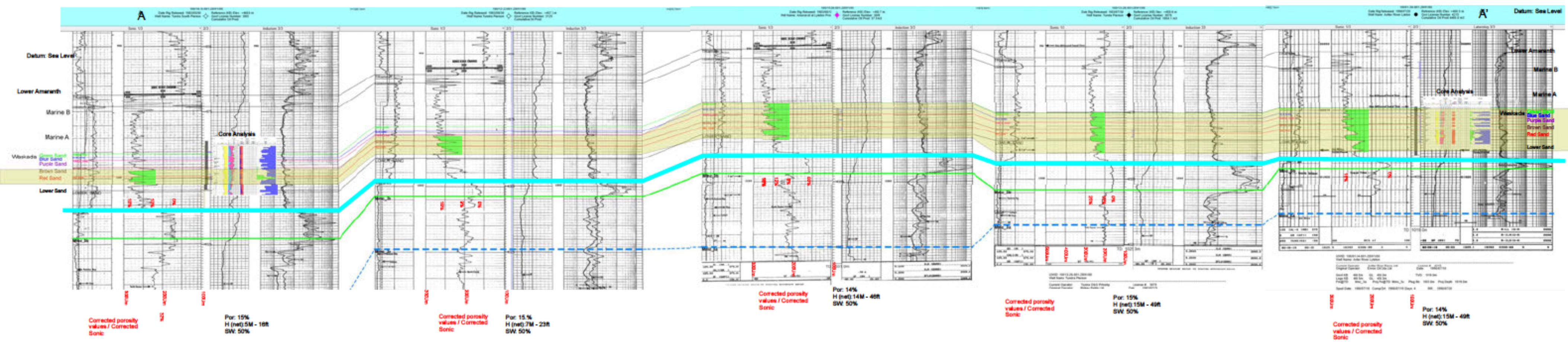
Original Signed by Greg Barrows, June 11, 2024, in Melita, MB

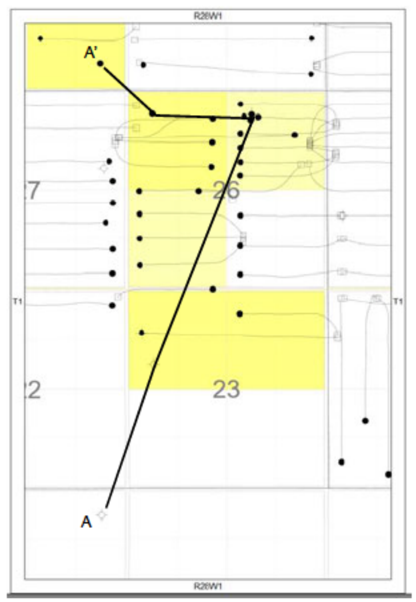
Proposed Waskada Unit No. 24

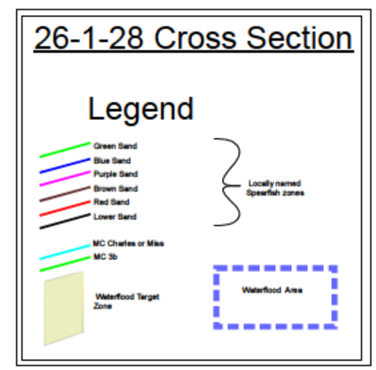
Application for Enhanced Oil Recovery Waterflood Project

List of Appendices

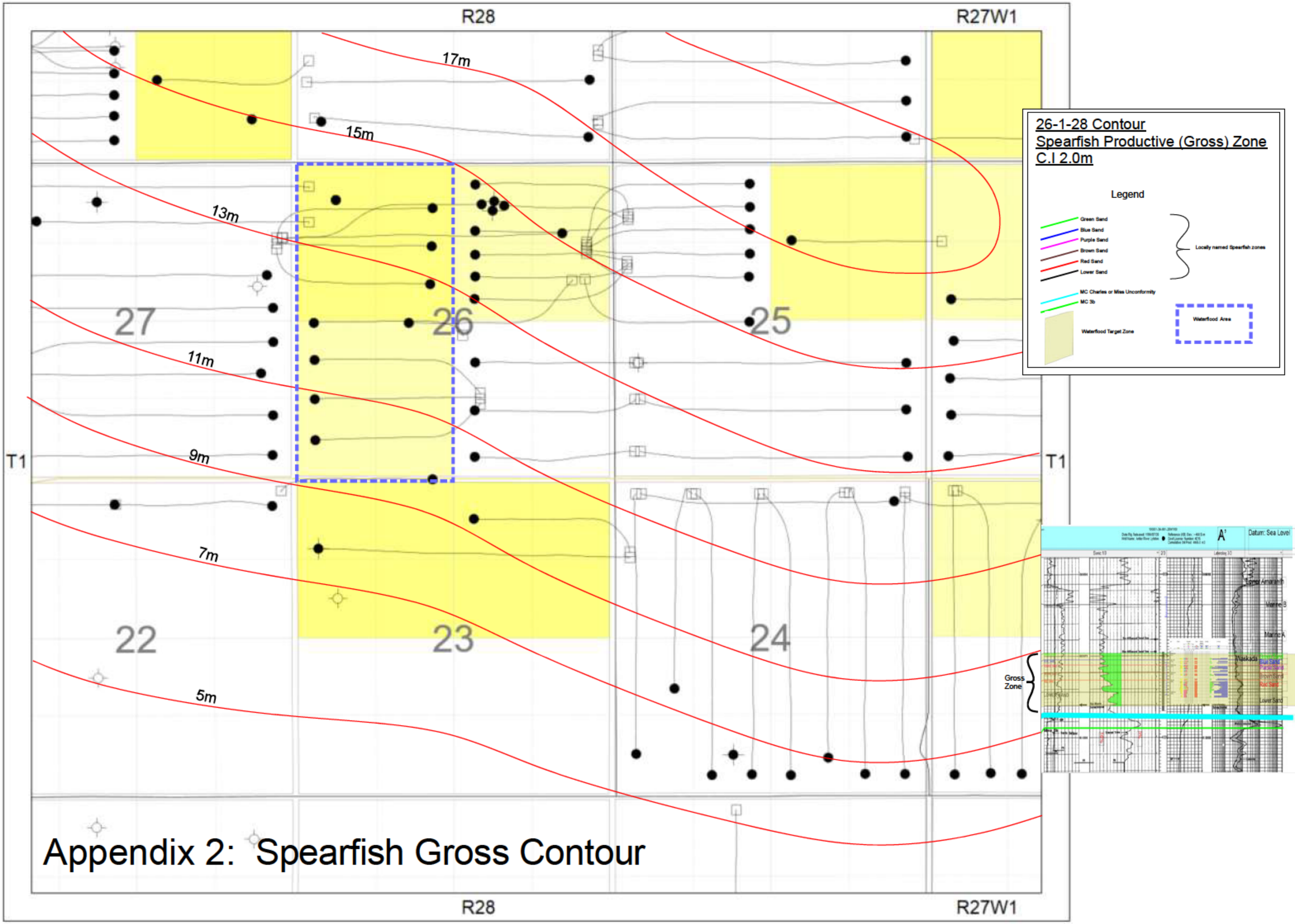
Appendix 1: Cross Section

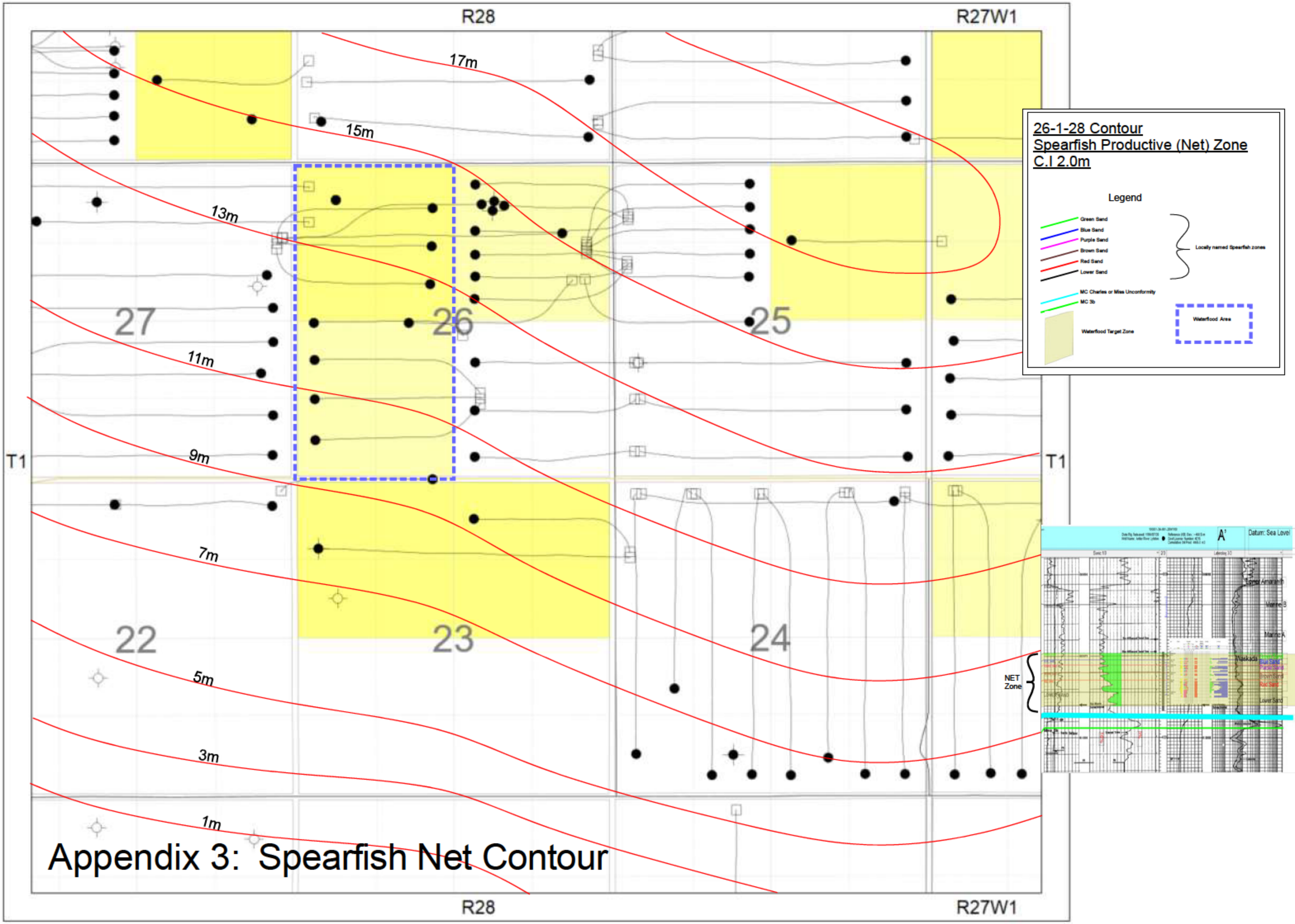




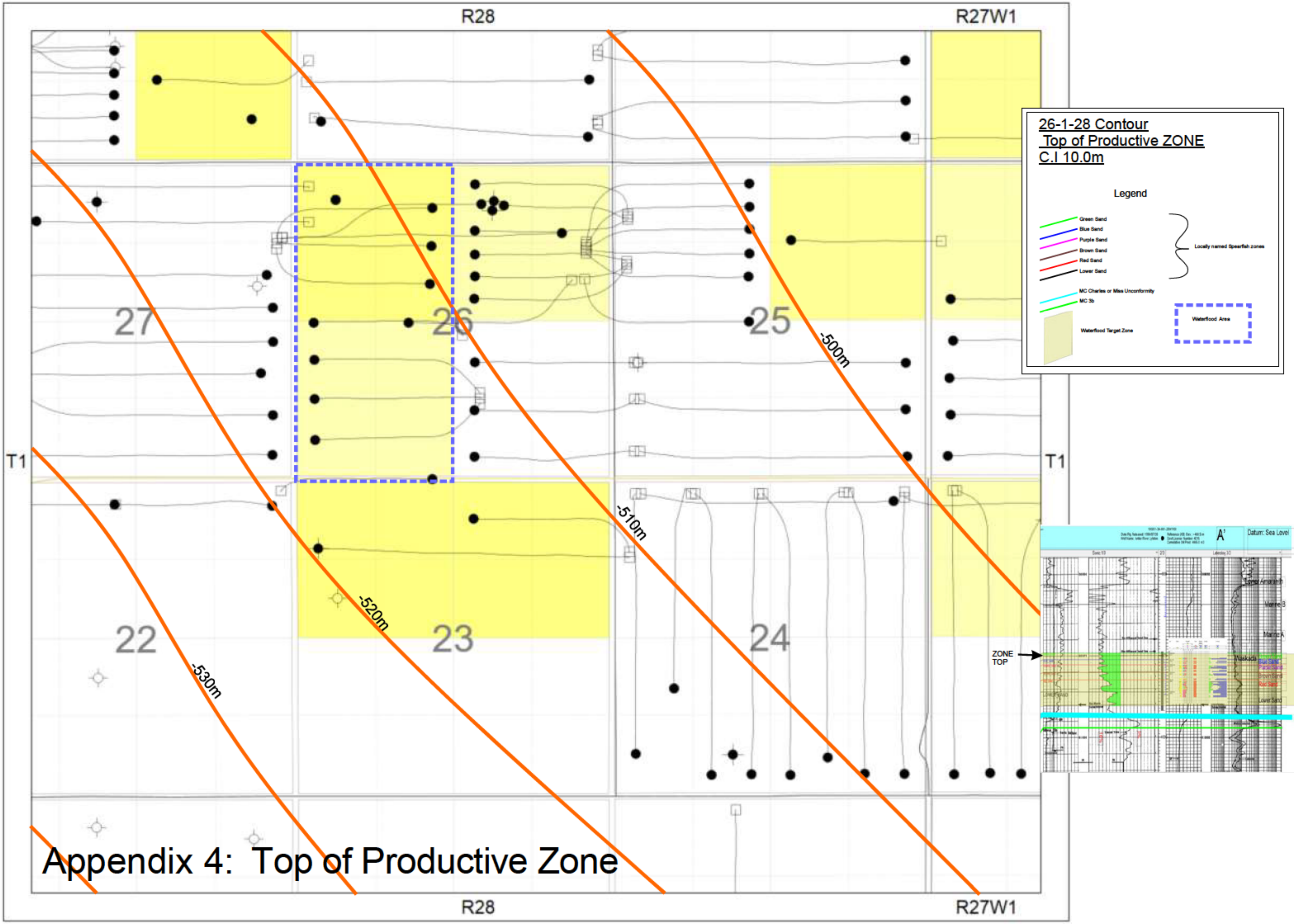


Appendix 2: Spearfish Gross Contour

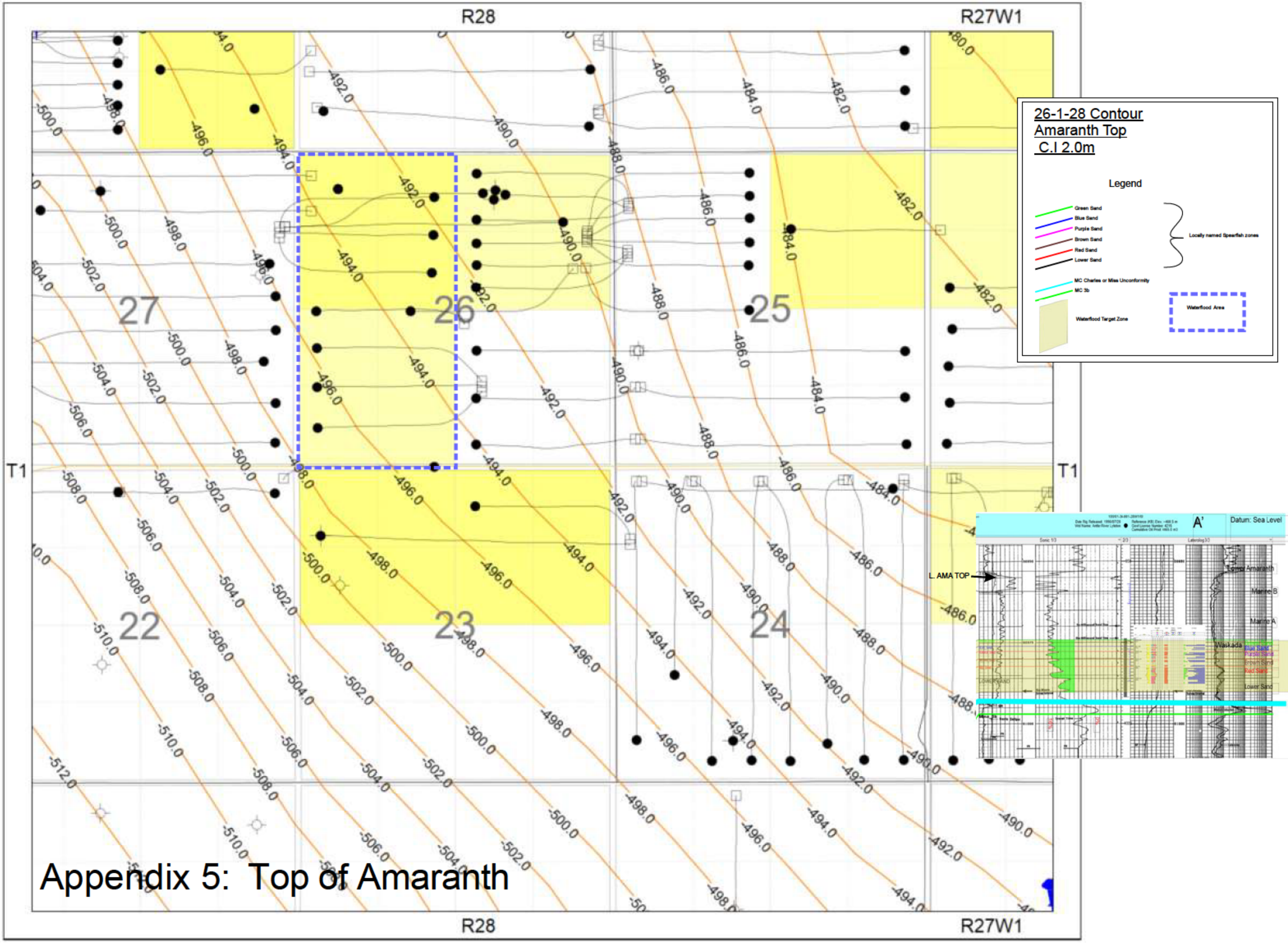




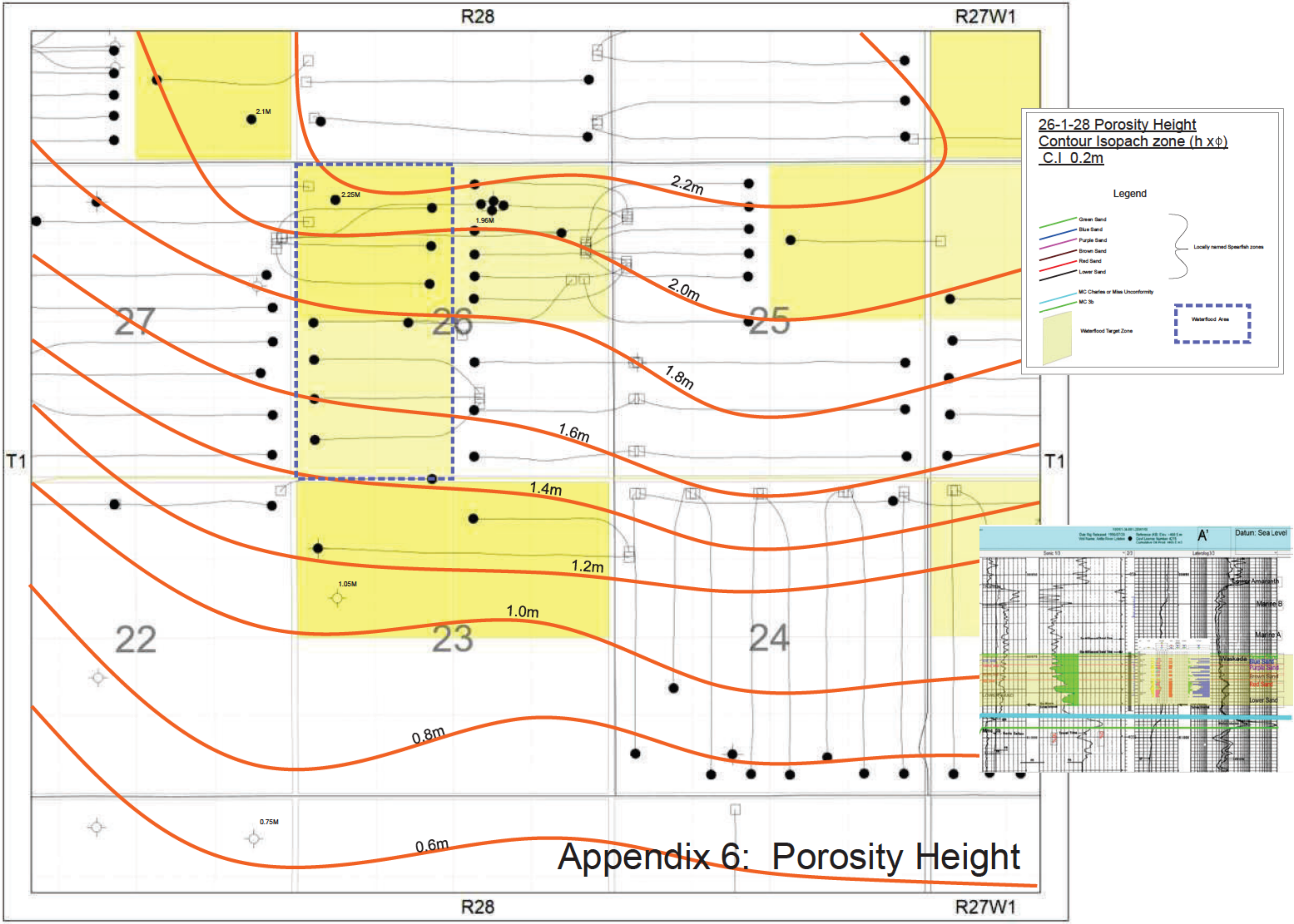
Appendix 3: Spearfish Net Contour



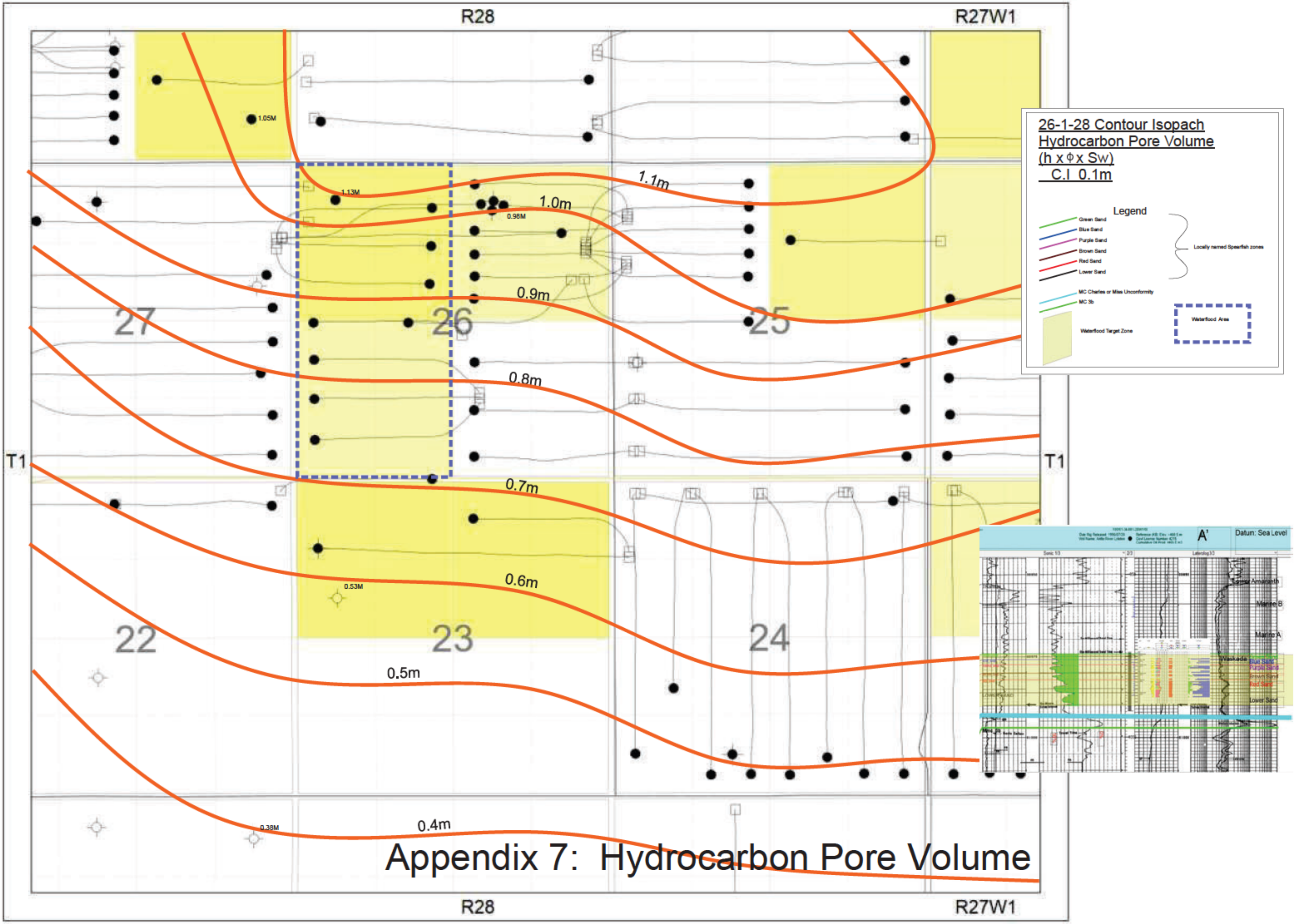
Appendix 4: Top of Productive Zone



Appendix 5: Top of Amaranth

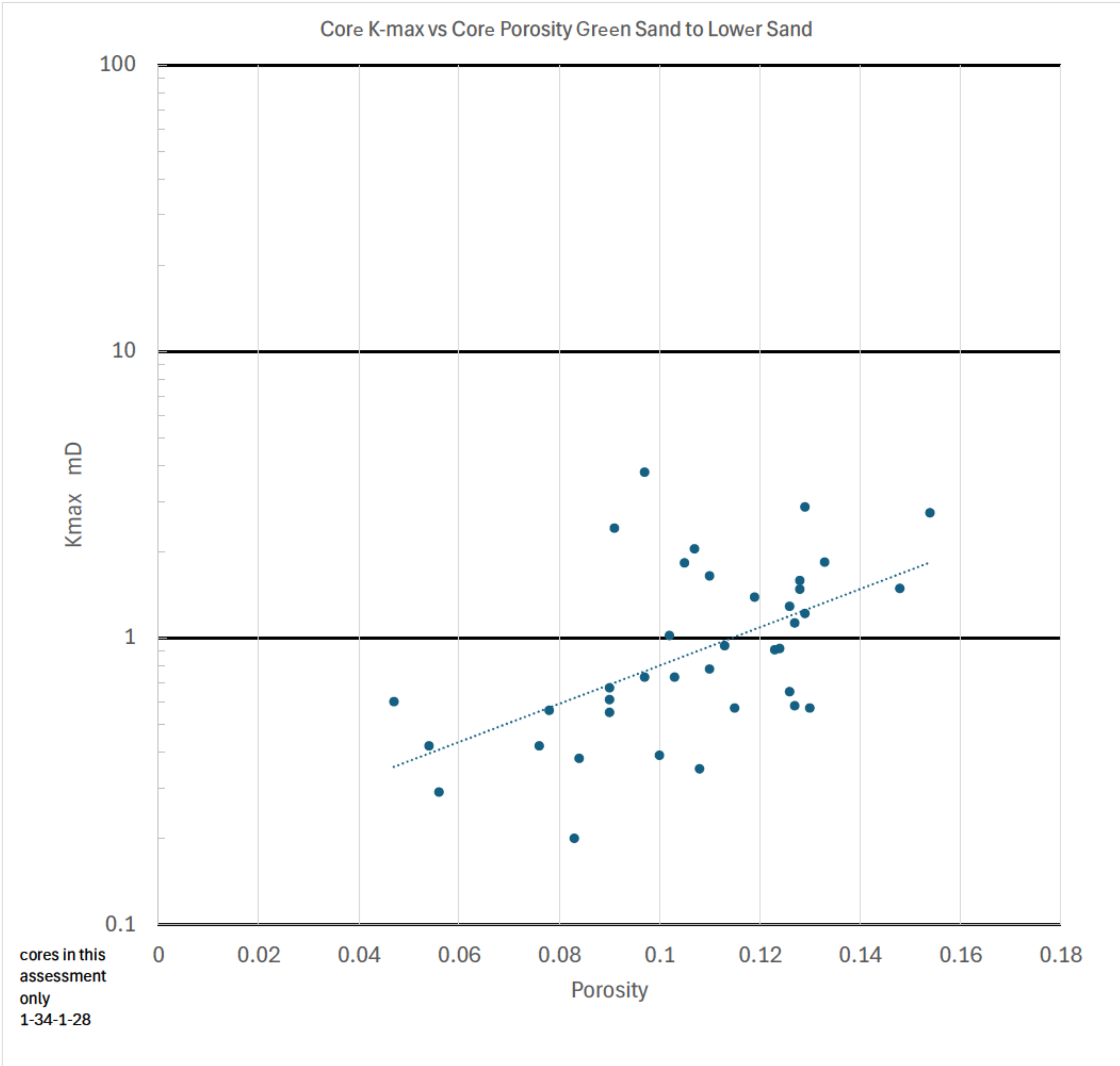


Appendix 6: Porosity Height



Appendix 7: Hydrocarbon Pore Volume

Appendix 8: Permeability vs Porosity



Proposed Lyleton Unit No. 1

Application for Enhanced Oil Recovery Waterflood Project

List of Figures

Figure 1: Pierson Area Map

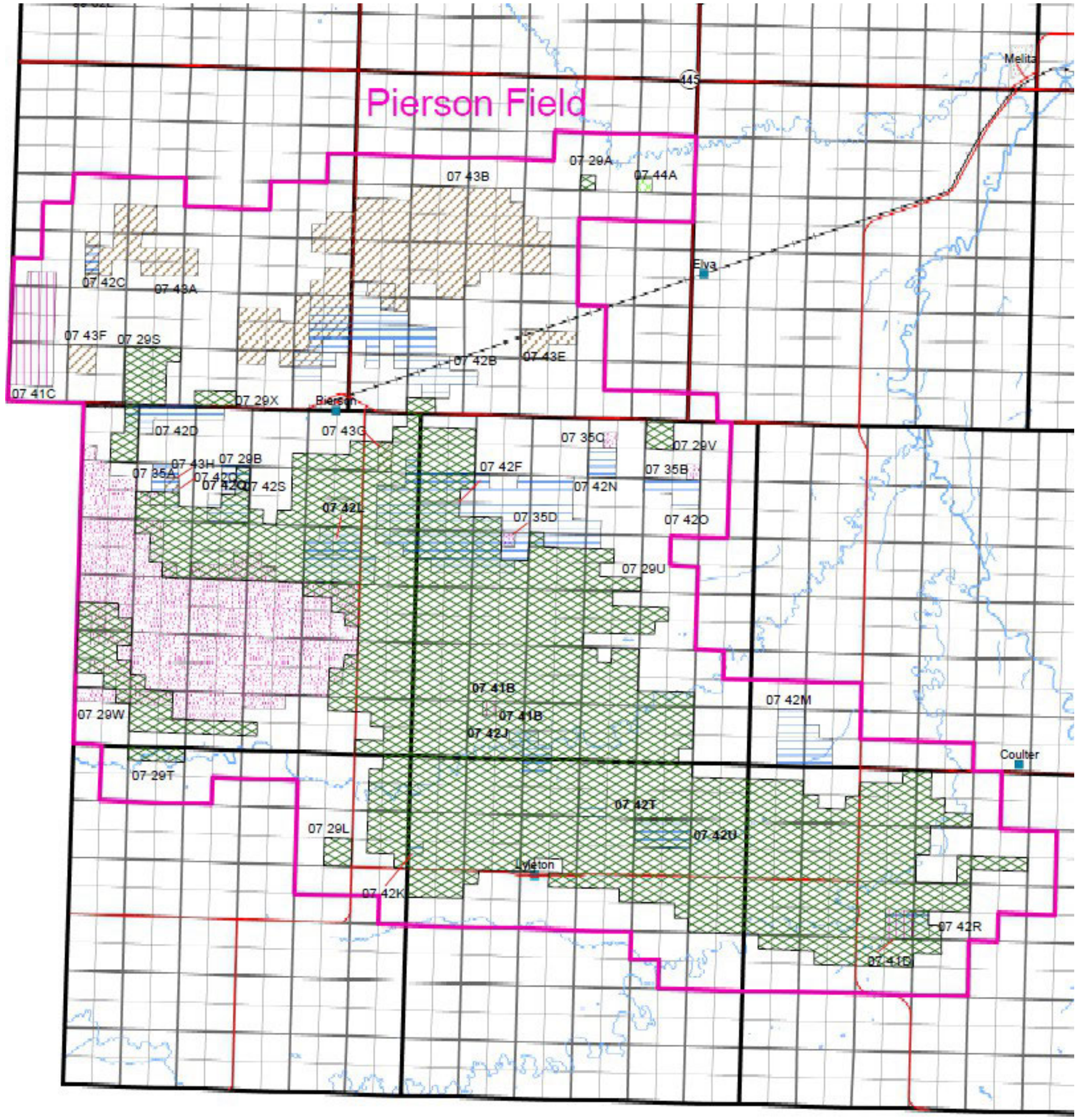


Figure 2: Proposed Lyleton Unit No.1 Boundary

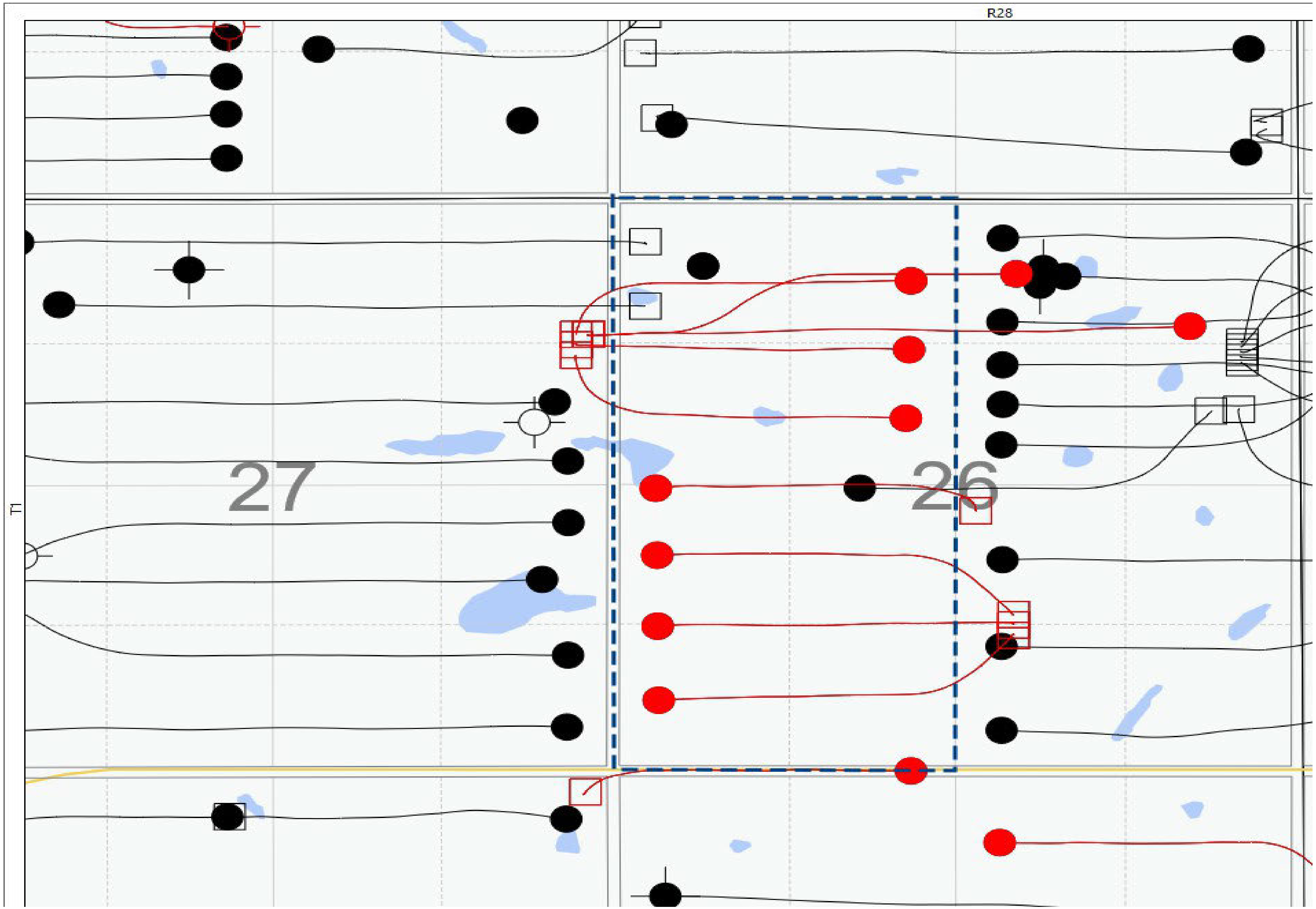


Figure 3: Pierson Field Amaranth Map

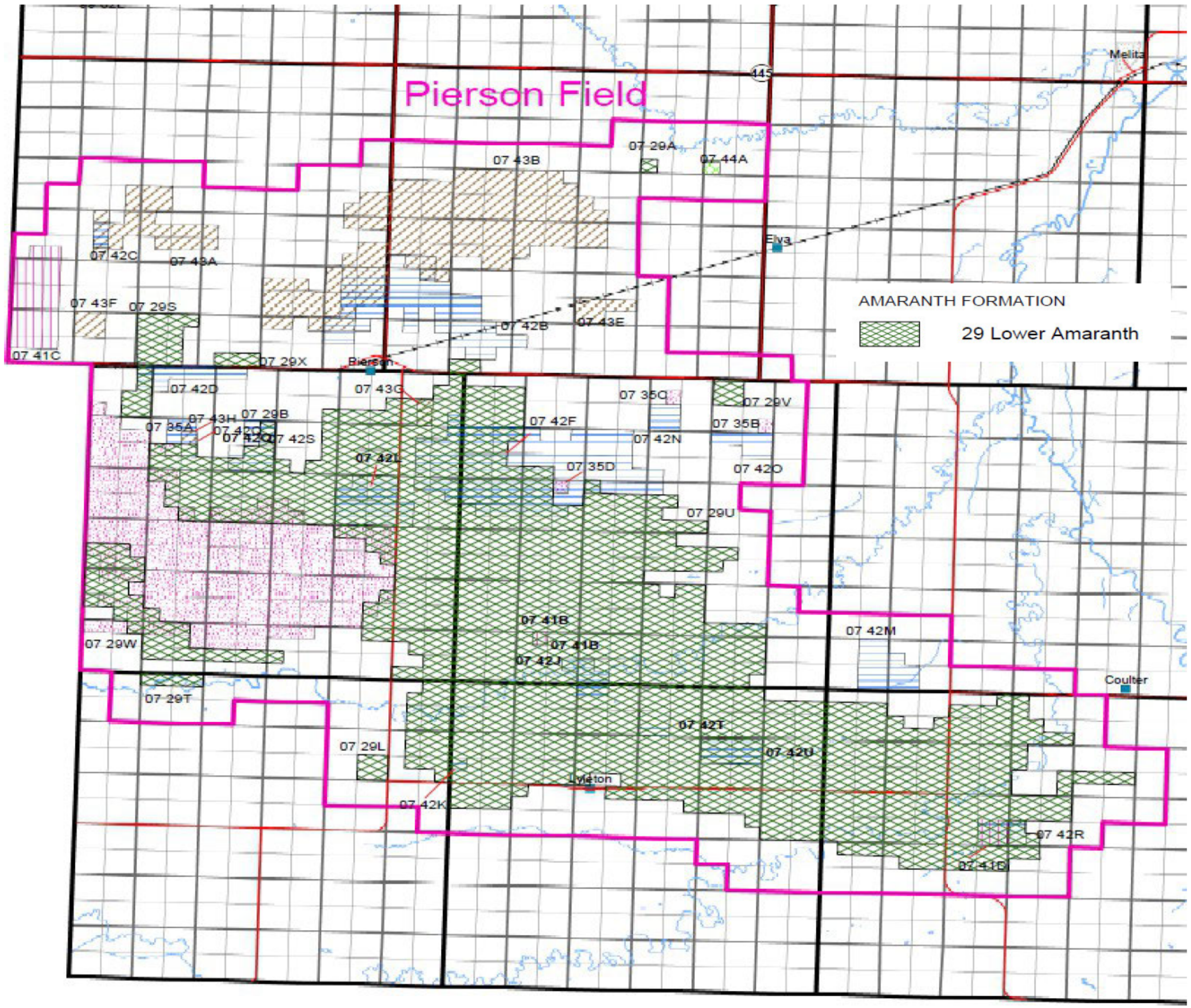


Figure 4: Historical Production Proposed Lyleton Unit No. 1

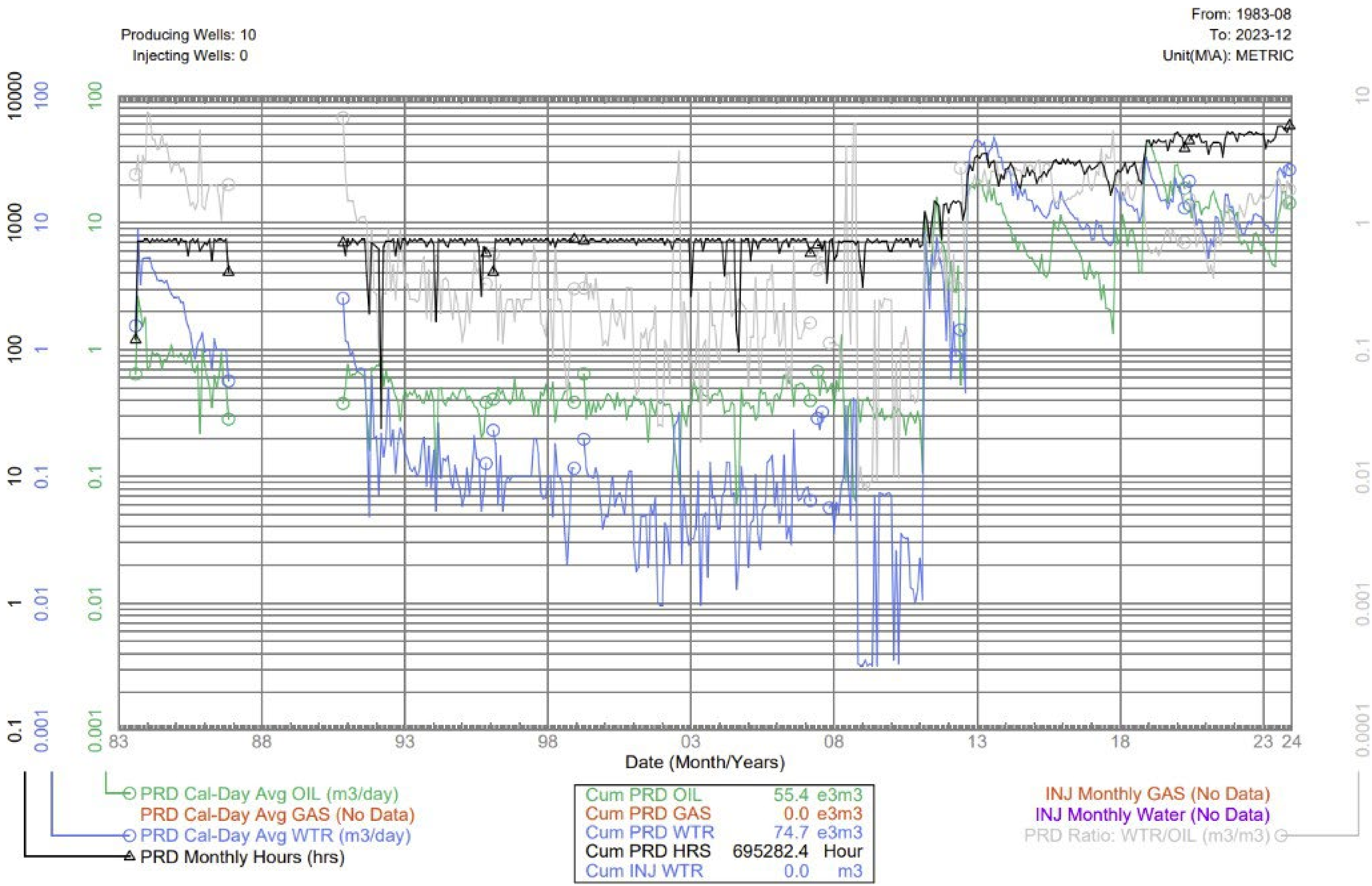


Figure 5: Lyleton Unit No. 1 Production Forecast

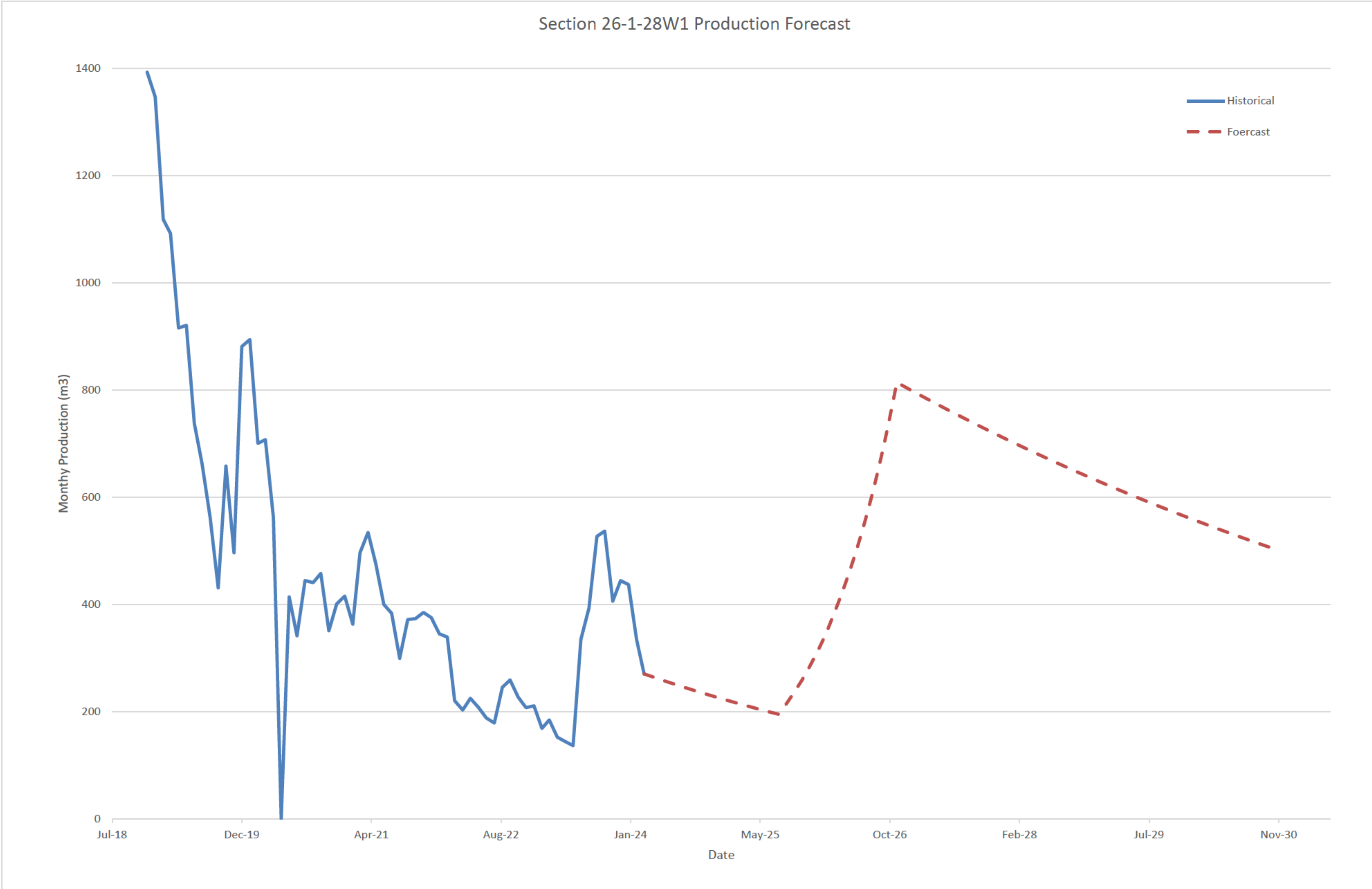
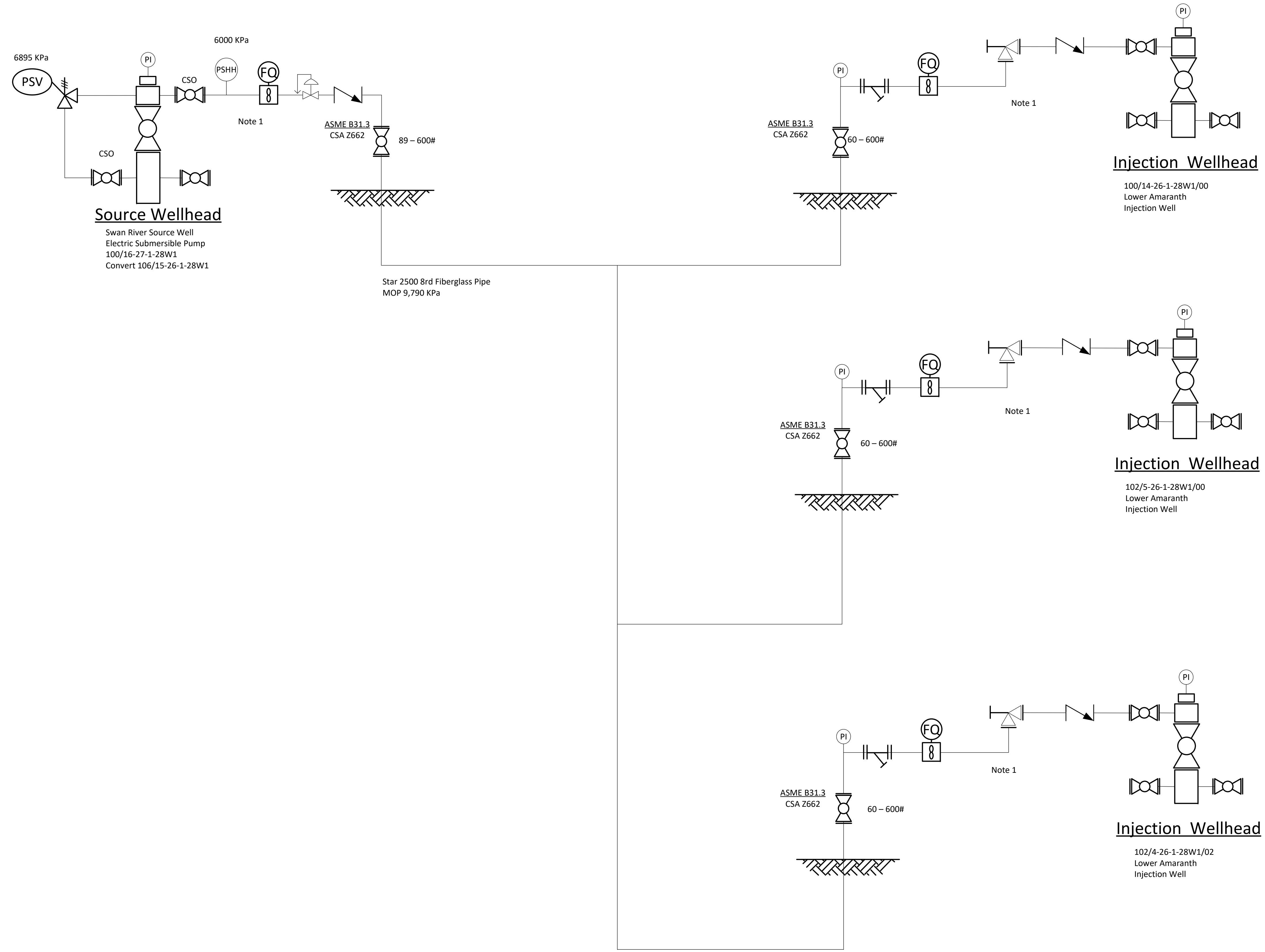


Figure 6: Source to Injection Water System



Note 1: Above Ground Piping will be heat traced and insluated to protect against freezing

LEGEND

Emulsion
Condensate
Gas
Fuel Gas
Oil
Water
Facility Delineation

WELLS & OPTIMIZATION SYMBOLS

Oil
Gas
Gas Well Producing Oil
Water InjEction Well
Water Source Well

T TIMER
E ELECTRIC
G FUEL GAS
P PROPANE
PL PLUNGER LIFT

Orifice Meter
Turbine Meter
Positive Displacement Meter
Electronic Flow Meter
Etube Meter
Ultrasonic Meter
Coriolis Meter

V-Cone Meter
Vortex Meter
Mass Meter
FR Flow Recorder (Chart)
FQ Flow Totalizer

SS Spot Sample
PS Proportional Sampler
FG (EST) Fuel Gas
ATM/Vent (Atmosphere)

LD Local Display
EST Estimate
PLC Programmable Logic Controller
Normally Closed Valve
Normally Open Valve
Control Valve
LG Level Gauge

REV.	DESCRIPTION	DRAWN	DATE MM/DD/YY	CHECKED	APP.
0	ISSUED FOR REVIEW				

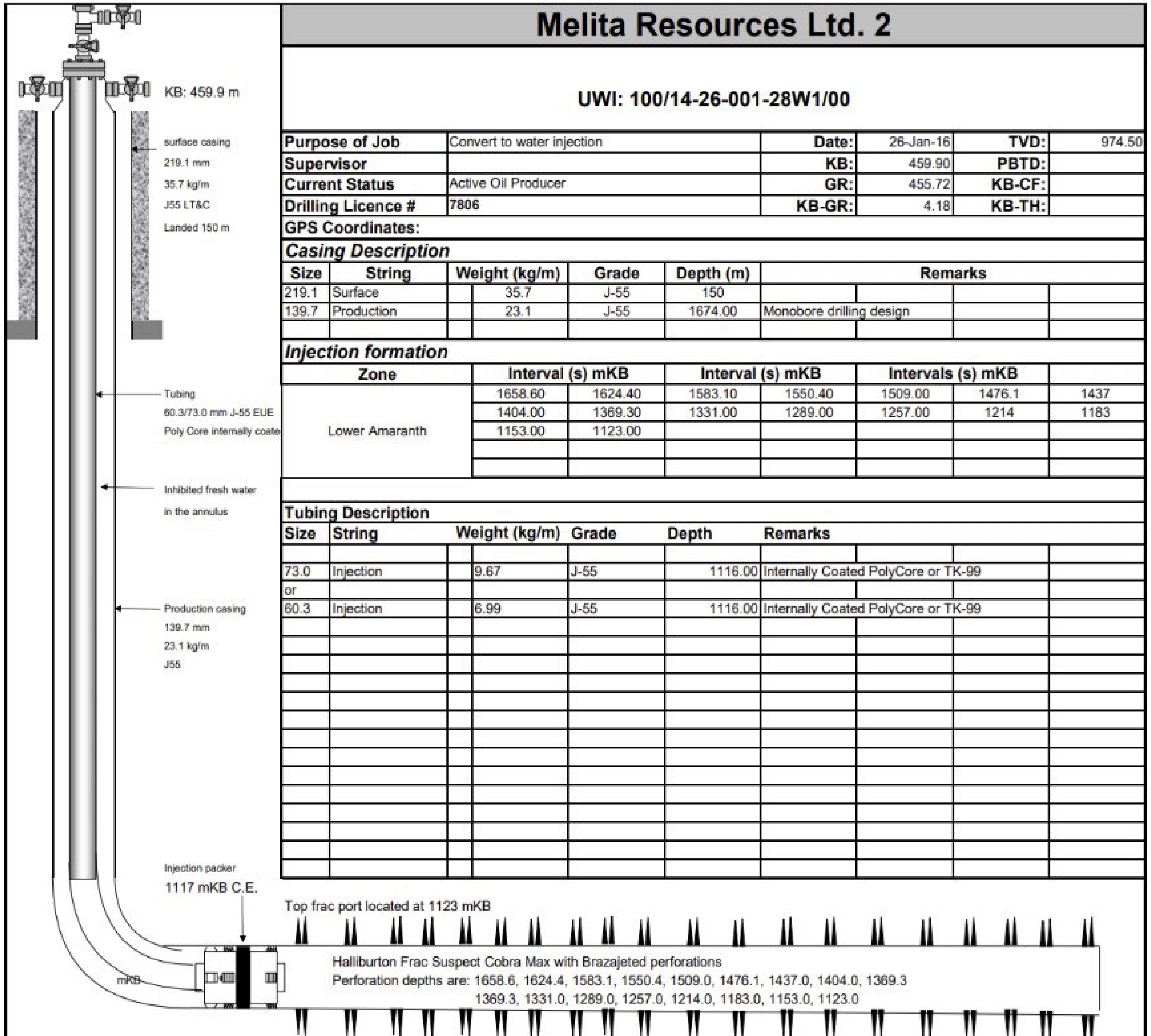
TITLE

Section 26-1-28W1
Source to Injection
Process Flow Diagram

SCALE	PAGE	DRAWING NO.	REV.
NTS	1 OF 1		0

Melita Resources LTD.

Figure 7: Typical Downhole WIW Wellbore Schematic



Melita Resources Ltd. 2

UWI: 100/14-26-001-28W1/00

Purpose of Job	Convert to water injection	**Date:**	26-Jan-16	**TVD:**	974.50
Supervisor		**KB:**	459.90	**PBTD:**	
Current Status	Active Oil Producer	**GR:**	455.72	**KB-CF:**	
Drilling Licence #	7806	**KB-GR:**	4.18	**KB-TH:**	
GPS Coordinates:					

Casing Description

Size	String	Weight (kg/m)	Grade	Depth (m)	Remarks
219.1	Surface	35.7	J-55	150	
139.7	Production	23.1	J-55	1674.00	Monobore drilling design

Injection formation

Zone	Interval (s) mKB		Interval (s) mKB		Intervals (s) mKB		
Lower Amaranth	1658.60	1624.40	1583.10	1550.40	1509.00	1476.1	1437
	1404.00	1369.30	1331.00	1289.00	1257.00	1214	1183
	1153.00	1123.00					

Tubing Description

Size	String	Weight (kg/m)	Grade	Depth	Remarks
73.0	Injection	9.67	J-55	1116.00	Internally Coated PolyCore or TK-99
or					
60.3	Injection	6.99	J-55	1116.00	Internally Coated PolyCore or TK-99

Planned Corrosion Program Lyleton Unit No. 1

Planned Corrosion Control Program **

Source Well

- Continuous downhole corrosion inhibition
- Continuous surface corrosion inhibitor injection
- Continuous surface scale inhibitor injection
- Corrosion resistant valves and internally coated surface piping

Pipelines

- 16-27-1-28W1 Source to Injection Wells
- New High Pressure Pipeline to Lyleton Unit No. 1:
  - 2500 psi high pressure Fiberglass
  - 600# ANSI 316 Stainless Steel or Carbon Steel internally coated

Injection Wellhead / Surface Piping

- Corrosion resistant valves and stainless steel and/or internally coated steel surface piping
- 600# ANSI

Injection Well

- Casing cathodic protection where required
- Wetted surfaces coated downhole packer
- Corrosion inhibited water in the annulus between tubing / casing
- Internally coated tubing surface to packer
- Surface freeze protection of annular fluid
- Corrosion resistant master valve
- Corrosion resistant pipeline valve

Producing Wells

- Casing cathodic protection where required
- Downhole batch corrosion inhibition as required
- Downhole scale inhibitor injection as required

** subject to final design and Engineering

Proposed Lyleton Unit No. 1

Application for Enhanced Oil Recovery Waterflood Project

List of Tables

TABLE NO. 1: TRACT PARTICIPATION

Tract No.	Land Description	Working Interest		Royalty Interest		Tract Participation	
		Owner	Share (%)	Owner	Share	Tract	Per Royalty Owner Tract
1	03-26-001-28W1M	MRL2 Ltd.	100	[redacted]	100.00%	15.956754326%	15.956754326%
2	04-26-001-28W1M	MRL2 Ltd.	100	[redacted]	100.00%	15.793406939%	15.793406939%
3	05-26-001-28W1M	MRL2 Ltd.	100	[redacted]	95.80%	8.652683248%	8.289270552%
				[redacted]	4.20%		0.363412696%
4	06-26-001-28W1M	MRL2 Ltd.	100	[redacted]	100.00%	9.926772239%	9.926772239%
5	11-26-001-28W1M	MRL2 Ltd.	100	[redacted]	95.73%	13.404634761%	12.832703678%
				[redacted]	4.27%		0.571931083%
6	12-26-001-28W1M	MRL2 Ltd.	100	[redacted]	91.47%	13.404710188%	12.260841586%
				[redacted]	8.53%		1.143868603%
7	13-26-001-28W1M	MRL2 Ltd.	100	[redacted]	100.00%	11.371303692%	11.371303692%
8	14-26-001-28W1M	MRL2 Ltd.	100	[redacted]	100.00%	11.489734606%	11.489734606%

TABLE NO. 2: TRACT FACTOR CALCULATIONS

TRACT FACTORS BASED ON 0/L-IN·PIACE (00/P} • CUMULATIVE PRODUCTION & LAST 12 MONTHS OF PRODUCTION TO Feb 2024

LSD	STM3 OOIP	Cumulative Production	OOIP - Cum	OOIP - Cum Allocation Factor	Last 12 Months Production	Last 12 Months Production Allocation Factor	50% OOIP -Cum + 50% Last 12 Month Prod Tract Factor
	(m3)	(m3)	(m3)		(m3)		
3-26-1-28W1	88803.8	4115.5	84688.4	0.093861048	664.9	0.225274039	0.159567543
4-26-1-28W1	88803.8	4108.4	84695.4	0.093868854	655.2	0.221999285	0.157934069
5-26-1-28W1	92930.1	8216.8	84713.2	0.093888598	233.6	0.079165067	0.086526832
6-26-1-28W1	122441.6	7433.5	115008.1	0.127464773	209.8	0.071070672	0.099267722
11-26-1-28W1	131860.2	8587.0	123273.3	0.136625123	388.0	0.131467573	0.134046348
12-26-1-28W1	128720.7	8633.5	120087.2	0.133093980	398.4	0.135000224	0.134047102
13-26-1-28W1	151370.1	8053.9	143316.2	0.158838985	202.4	0.068587089	0.113713037
14-26-1-28W1	151370.1	4878.2	146491.9	0.162358640	199.0	0.067436052	0.114897346

TABLE NO. 3: OOIP Calculations

LSD	ACRES	Fm	STB OOIP	POROSITY	THICKNESS in FEET	Sw	FVF constant for basin	STM3 OOIP
			(bbl)					(m3)
3-26-1-28W1	40	Amaranth	558,576	15%	33	60%	1.1	88803.8
4-26-1-28W1	40	Amaranth	558,576	15%	33	60%	1.1	88803.8
5-26-1-28W1	40	Amaranth	584,530	14%	37	60%	1.1	92930.1
6-26-1-28W1	40	Amaranth	770,158	14%	39	50%	1.1	122441.6
11-26-1-28W1	40	Amaranth	829,401	14%	42	50%	1.1	131860.2
12-26-1-28W1	40	Amaranth	809,653	14%	41	50%	1.1	128720.7
13-26-1-28W1	40	Amaranth	952,118	15%	45	50%	1.1	151370.1
14-26-1-28W1	40	Amaranth	952,118	15%	45	50%	1.1	151370.1