Mirage

OCS-G 24130 No. 2 ST01 BP00
Mississippi Canyon Block 942

Revision Number	Date	Description	Prepared By	Reviewed By
00	13 Sept 2011	Completion fluid, indirect displacement of cased hole, packer fluid and insulating packer fluid and modeling, & LCM recommendations	John A. Carboni	Casey Parker
01	11 Oct 2011	Revised mud weight from 14.0 ppg to 13.5 ppg	John A. Carboni	Casey Parker
02	06 Oct 2011	Changed density of SafeTherm to 12.5 ppg and packer fluid in A annulus to 10.0 ppg Calcium Chloride	John A. Carboni	Casey Parker

06 October 2011

Mr. Janet Gratkowski and Casey Parker
4600 Post Oak Place
Houston, Texas 77027-9726

Dear Janet and Casey

Enclosed are our recommendations for fluids, filtration, displacement, and fluid loss control and packer fluids for ATP Oil & Gas Corporations' Mirage Well OCS-G-24130 Number 2 BP03, Tieback and Completion Programs. The well currently contains 13.5 ppg Synthetic Based Drilling fluid and will be displaced to seawater then to 12.5 ppg Sodium Bromide for tieback work then to 13.3 ppg Calcium Chloride / Calcium Bromide for completion. Packer fluids are 12.5 ppg Sodium Bromide in the C annulus, 12.5 ppg SafeTherm, an insulating packer fluid, installed in the B annulus and 10.0 ppg Calcium Chloride in the A annulus and will be treated as recommended later in this document. Note: a 12.5 ppg Sodium Bromide has a crystallization temperature of 37 degrees Fahrenheit and with pressure applied, will freeze up at the mud line.

Based on information supplied, and information calculated by M-I SWACO's software, Virtual Completion Solutions (VCS) we recommend a 13.3 ppg, Calcium Chloride / Calcium Bromide, 20 degree Fahrenheit blend, to complete this well.

We will manage fluid density with 14.6 ppg Calcium Chloride / Calcium Bromide blend which will suppress hydrates. Because of water intrusion during displacement, Completion Fluid should be ordered 2 tenths heavier, 13.5 ppg, than well requires and allow density to drift back to 13.3 ppg. Completion fluids allowing fluid density to drift back prove to be the most economical way to manage fluid density. Adding significant amounts of spike fluid and / or adding dry Calcium Bromide sack material to manage water intrusion is least economical.

Our primary fluid loss control pill is sheared and filtered HEC pills, Safe-Vis OGS with secondary being M-I SWACO's Safe Link, cross linked pill. M-I SWACO also recommends shearing and filtering of all HEC pills which may contact your producing formation.

Displacements will be performed by pumping the long way. **The displacement was designed with pump pressure limited at 7000 psi with a maximum pump rate of 10 barrels per minute and a minimum pump rate of 4 barrels per minute.** This maximum pump pressures occurs as base oil begins to exit the drill pipe with a pump rate at 4 barrels per minute. This pump rate and pump pressure may require the use of a cement unit to pump the spacers and seawater until seawater enters the annulus thus allowing the rig pumps to pump the remaining seawater and displacement. Displacement is also designed with M-I SWACO Specialty Tools design and should be run accordingly.

The following equipment is recommended to complete this well:

1. Two 1500 square foot filtration units are recommended to handle fluid volumes and circulating rates.
2. Shear unit along with an additional cartridge unit dressed out with 10 micron cartridges.

M-I SWACO also has a complete line of filtration equipment, intervention, reservoir and drilling fluids, specialty clean out tools, solids control equipment including shale shaker screen and environmental services which we would appreciate the opportunity to introduce to ATP Oil & Gas Corporation.

M-I SWACO wishes to express its gratitude and appreciation for allowing us to participate in your Mirage completion, located in Mississippi Canyon Block 942. Please do not hesitate to contact me or one of my colleagues if we can be of further assistance.

Best regards,

John A. Carboni

John A. Carboni
M-I SWACO Senior Project Engineer
Cellular Telephone: 832.331.0199
Home: 832.478.5640

Table of Contents

Health, Safety and Environment

Safety

1. Hold a pre-tour meeting with ATP Oil & Gas Corporation, Nabors Offshore Incorporated, M-I SWACO personnel and any others involved in this operation. Review objectives and address all safety issues.
2. Daily Pre-tour meetings shall be held and JSA's written prior to executing procedure.
3. Daily Pre-tour meetings shall include safe handling of fluids, chemicals and equipment.
4. Review and write a JSA for transporting and transferring fluids and chemicals from facility to boat and boat to facility.
5. Review and write a JSA for heavy lifting practices and observe caution when rigging up filtration equipment.
6. It is imperative that each and everyone participating in this operation and understands their roles and responsibilities. Everyone has responsibility for one another's safety.
7. Safe handling of completion fluid shall be mentioned in pre tour meetings, identified in job safety analysis and in tail gate meetings.
8. Everyone is responsible and has the right and the obligation to stop unsafe acts.
9. Actively participate in a Behavior Based Program such as STOP.
10. All personnel working in the vicinity of completion fluid shall view and understand the Safety Video provided by M-I SWACO. Questions and concerns will be addressed.
11. Consult with ATP Oil & Gas Corporation and M-I SWACO representatives if unsure about safe handling procedures or required PPE.
12. Material Safety Data Sheets (MSDS) will be provided for all products for review. Know the location where MSDS sheets are stored. Understand safety issues associated with each product.
13. Review MSDS and safe handling procedures prior to adding spike fluids and mixing dry additives.
14. Wear proper Personnel Protection Equipment (PPE), hard hat, safety glasses, ear protection, fire retardant clothing, rubber gloves, steel toe rubber boots and barrier cream. Correct wearing of required PPE will be demonstrated and understood by all employees. Barrier and hand cream is provided and shall be used to prevent dehydration of skin. Appropriate PPE shall be required, worn and enforced.
15. Confine work space rules apply: Do no enter confined spaces without proper training, PPE, observer and reviewed and signed-off, by proper supervisors, document which validates Confined Space Work Permit.
16. Review and follow lock-out / tag-out procedure prior to entering confined work spaces.
17. Hang Sala Blocks from a cross member on the mast dynamic frame to attach fall protection.
18. Use alternative cutting devices. Open bladed knives are prohibited.
19. Identify pinch points and hazards while executing this procedure.
20. Know location of eyewash stations and ensure they are working properly. Always wear safety glasses.
21. Deck will become slippery when completion fluids are spilled. Completion fluid will not evaporate. Therefore, all spilled completion fluid will be vacuumed up and followed by mopping affected area.
22. Safety reminder, brines can cause skin irritation and eye irritation or permanent eye damage.

Environmental

1. All parties shall become familiar with regulatory requirements for the discharge of fluids. This will include all fluids to be discharged which require Oil and Grease, Static Sheen and having results available prior to discharging.
2. Conduct static sheen test on all fluids prior to disposal. Note and record on environmental report.
3. Monitor tank valves and verify proper seal.
4. Oil and Grease Kits shall be on location along with documentation for shipping to testing facility.
5. Any discharge of completion fluids must pass a static sheen test and cannot contain more than 42 mg/l of oil and grease on a daily basis with a 29 ml/l or less monthly average. Samples must be retained for oil and grease analysis.

6. Closely monitor completion and drilling fluid transfers.
7. Report all spills and unscheduled discharges to operator representatives.
8. Operator will report all spills and unscheduled discharges proper regulatory agencies.

Rig Cleaning

1. Cleaning solution is defined as Safe-Surf O mixed in seawater. The formulation for the cleaning solution is 55 gallons, one 55-gallon drum of Safe-Surf O, per 2045 gallons, 48.7 barrels, of seawater. The resulting volume is 2100 gallons or 50 barrels. Total product usage is 220 gallons of Safe-Surf O, four 55-gallon drums, mixed in 8180 gallons, 194.8 barrels, of seawater.
2. Pump two hundred barrels of cleaning solution through mud pumps, centrifugal pumps, manifolds, solids control equipment, degassing equipment, mud bucket, hoses and lines that may be exposed to completion fluid. Wash pits, including pit tops; cement unit and solids control equipment with a high pressure jet nozzle.
3. Thoroughly clean all lines to and from the cement unit.
4. Thoroughly flush through take on line, mixing lines, pump charging lines, lines to and from filtration unit, and suction lines and equipment.
5. Confirm fluid handling equipment and all mud pits and sand traps dump valves are sealed off and there are no oil leaks on agitators or shale shakers. This will mitigate the introduction of seawater or drill water into completion fluid system.
6. Isolate the sea chest, seawater and drill water lines ensuring all water lines above the mud pits are blanked off, or at a minimum leak free.
7. Thoroughly clean all pits, trip tanks, mud bucket, solids control equipment and surface lines. From here forward, The M-I SWACO fluid engineer shall monitor cleaning process continually to assure all possible contaminants are removed from circulating system. M-I SWACO's Clean Up may be substituted for Safe-Solv O. Pressure washer will be required. Review Pit Cleaning Documents.
8. Close all dump valves and any other isolation valves which are sources of seawater or drill water and seal them off. Lock out tag out dump valves. Only authorized personnel shall have access to these valves.
9. See rig cleaning check list which is included later in this document.

M-I SWACO Filtration

1. Rig up two 1500 square foot D. E. filtration units.
2. Rig up shear unit and cartridge pod unit with 10 micron nominal cartridges.
3. Filter all completion fluid before pumping down hole.

Pre-Displacement

1. With Virtual Completion Solutions (VCS) predict maximum displacement pump pressure.
2. Mix all spacers prior to beginning displacement.
3. Take on required completion fluid volume to displace without stopping, prior to displacing well bore from drilling fluid to completion fluid.
4. Identify flow paths for spacers and drilling fluid to minimize pit contamination.
5. Have boats alongside if necessary to pump off spent displacement chemicals and/or take on drilling fluid.
6. M-I SWACO Specialty Tools will be laid out on pipe rack. Measure lengths, ID's and OD's of each tool and record.

Operations

1. M-I SWACO fluid engineers will verify valve positions; ensuring fluids are routed to their proper places and continually monitors all fluid transfers.
2. Trip into well bore with M-I SWACO Specialty Tools as designed.
3. Wipe completion fluid from work string with a slotted wiper rubber and to prevent dropped object from falling into well bore. Rinse tubulars on rig floor with fresh water. DO NOT allow wash water to drain into circulating system. Completion fluid may drip from tubulars when pulling pipe out of well. Back away from tubulars prior to looking up as completion fluid may drip.

4. Successfully test tieback prior to displacement. Record and chart line top test.
5. Test all circulating lines and immediately repair all leaks. Pay special attention to dresser sleeves.
6. Monitor tank valves and verify proper seal.
7. Closely monitor completion and drilling fluid transfers.
8. Notify ballast control of any significant changes in fluid distribution and cargo movement.

Mud Pumps

Maximum operating pressure is 7500 psi.
Pumping design was done with 7000 psi maximum pressure.

Function Well Control Equipment

1. Function BOP stack and annular preventor to remove large debris entrapped in cavities and ensure they are in proper working order.

Work Sting

All tubulars which are stood back in the derrick, laid out on pipe rack and transported after being exposed to completion fluids and exposed to the atmospheric conditions for an extended length of time should be cleaned and treated to mitigate damage to these tubulars.

Mirage Project
OCS-G-24130 Number 2 ST01 BP00
Mississippi Canyon Block 942
Well Bore Displacement
Prior To Running Tie Back

Objectives

1. Successfully complete Mirage, Well Number 2 ST01 BP00, without and health, safety, environmental or operational issues.
2. The well currently contains 13.5 ppg Synthetic Based Drilling Fluid to TD. For tieback work, successfully displace well bore from 13.5 ppg SBM to seawater then to 12.5 ppg Sodium Bromide without and health, safety, environmental or operational issues.
3. Spot a lost circulation pill which will slow down or stop fluid losses to the formation.
4. Install packer fluid without incident.
5. Rig up and rig down filtration equipment and filter completion fluid without and health, safety, environmental or operational issues.
6. Run displacement tools without incident or failure.

Displacement

1. 12.5 ppg Sodium Bromide will be shipped to run tieback. 12.5 ppg Sodium Bromide will be treated and left in the C annulus as packer fluid. Density can be maintained with dry (sack) Sodium Bromide.
2. Calcium Chloride / Calcium Bromide Fluids: Completion fluid should be ordered 2 tenths heavier than well requires and allow density to drift back. Adding significant amounts of spike fluid or adding dry (sack) Calcium Bromide sack will prove to be the least economical method of maintaining density.
3. Trip in hole with scrapers, brushes, magnets and other tools recommended by MI SWACO's Specialized Tool group.
4. Circulate seawater until returns are clean and NTU's are less than 100.
5. Make a short trip.
6. When on bottom, circulate seawater until solids content coming out of the wellbore is less than 0.1 percent by volume and NTU readings are less than 100. Chart and plot NTU's versus barrels. Pay special attention to fluid prior, during and immediately after bottoms up. Note and record any changes if fluid color, solids content and NTU's.
7. Rotate and reciprocate work string while circulating seawater.
8. Because of the differential between 12.5 ppg completion fluid and seawater, holding back pressure until 12.5 ppg Sodium Bromide catches up with seawater should be considered.
9. Displacement will be done the long way, down the drill pipe and up the annulus.
10. To measure displacement efficiency, fluid engineers will be catching samples of displacement spacers as they return for evaluation at our Houston lab facility. Prior to displacing, ensure there are sufficient samples containers on board.
11. Begin wellbore displacement process.
12. Take on and filter completion fluid into suction pits.
13. Run and report rheology of all spacers.

Displace 13.5 ppg SBM To Seawater

1. Circulate and condition 13.5 ppg synthetic based drilling fluid at maximum pump rates until solids at shale shakers has cleaned up and free of large debris.
2. Continually rotate and reciprocate the work string while circulating and conditioning drilling fluid. When displacing and prior to the spacers exiting the work sting, have the bit on bottom and discontinue reciprocation of work string. Resume reciprocation after the final spacer has cleared the bit.
3. Displace synthetic based drilling fluid to seawater by pumping the following displacement the long way, down work string and up the annulus.

   Note: Never stop pumping after displacement has begun.

   Pump the following down the work string with returns up the annulus

   1. Synthetic base oil – 25 barrels
   2. Weighted transition spacer – 200 barrels

      Formulation for one barrel

Seawater	0.7490 barrels
DuoVis	2.00 pounds per barrel
Barite	368.9 pounds per barrel

      Formulation for 200 barrels

Seawater	149 barrels
DuoVis	298 pounds
Barite	73,780 pounds per barrel

   3. Chemical wash –100 barrels

      Formulation for one barrel

Seawater	0.8800 barrels
DeepClean	0.1200 barrels

      Formulation for 100 barrels

Seawater	88.0 barrels
DeepClean	12.0 barrels

   4. Polymer spacer – 75 barrels

      Formulation for one barrel

Seawater	0.9800 barrels
DuoVis	3.00 pounds per barrel

      Formulation for 50 barrels

Seawater	74.0 barrels
DuoVis	225.0 pounds

Spacers, volume and density

Fluid / Spacer	**Density** (ppg)	**Volume** (bbls)	**Total Volume Pumped** (bbls)	**Pump Rate** (bpm)
Synthetic base oil	6.8	25	25	5
Transition spacer	15.0	200	225	5
Chemical wash	8.4	100	325	5
Polymer spacer	8.4	75	400	5
Seawater	8.33	2100	2500	10

5. Continue to circulate seawater until solids content coming out of the wellbore is less than 0.1 percent by volume and NTU readings are less than 100. Chart and plot NTU's versus barrels. Pay special attention to fluid prior, during and immediately after bottoms up. Note and record any changes if fluid color, solids content and NTU's.

*** Monitor fluid pumped versus fluid returned, o**ne barrel in one barrel out.
****The operator has responsibility for spacer disposal.** The Environmental Protection Agency's (SPA) National Pollutant Discharge Elimination System (NPDES) regulations shall be met when discharging spacers, high viscosity sweeps and pills. To remain in compliance, Static sheen and Oil and Grease standards shall be met.

Displace Seawater to 12.5 ppg Sodium Bromide

Pump the following down the work string with returns up the annulus

1. Polymer spacer – 75 barrels
   Formulation for one barrel
   Seawater or completion fluid 0.9800 barrels
   Safe-Vis OGS 1.0 gallons per barrel
   Formulation for 50 barrels
   Seawater or completion fluid 74.0 barrels
   Safe-Vis OGS 1.0 gallons per barrel

2. Continue to circulate and filter 12.5 ppg Sodium Bromide until solids content coming out of the wellbore is less than 0.1 percent by volume and NTU readings are less than 30 or flat lines. Chart and plot NTU's versus barrels. Pay special attention to fluid prior, during and immediately after bottoms up. Note and record any changes if fluid color, solids content and NTU's.
3. Proceed to the next completion step.

*** Monitor fluid pumped versus fluid returned, o**ne barrel in one barrel out.
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Note: 12.5 ppg Sodium Bromide and dry Sodium Bromide will be used for density maintenance.

Displace 12.5 ppg Sodium Bromide to 13.3 ppg $CaCl_2$ / $CaBr_2$

Pump the following down the work string with returns up the annulus

1. Polymer spacer – 75 barrels
   Formulation for one barrel
   Seawater or completion fluid 0.9800 barrels
   Safe-Vis OGS 1.0 gallons per barrel
   Formulation for 50 barrels
   Seawater or completion fluid 74.0 barrels
   Safe-Vis OGS 1.0 gallons per barrel

2. Continue to circulate and filter 13.3 ppg $CaCl_2$ / $CaBr_2$ until solids content coming out of the wellbore is less than 0.1 percent by volume and NTU readings are less than 30 or flat lines. Chart and plot NTU's versus barrels. Pay special attention to fluid prior, during and immediately after bottoms up. Note and record any changes if fluid color, solids content and NTU's.
3. Proceed to the next completion step.
   *** Monitor fluid pumped versus fluid returned, o**ne barrel in one barrel out.

****The operator has responsibility for spacer disposal.** The Environmental Protection Agency's (SPA) National Pollutant Discharge Elimination System (NPDES) regulations shall be met when discharging spacers, high viscosity sweeps and pills. To remain in compliance, Static sheen and Oil and Grease standards shall be met.

Note: 14.6 ppg Calcium Chloride / Calcium Bromide, with a 30 degree true crystallization temperature will be used as spike fluid. 14.6 ppg Calcium Bromide will be bought back at 80% of its original value.

Displace 13.3 ppg $CaCl_2$ / $CaBr_2$ To Seawater

Pump the following down the work string with returns up the annulus

1. Polymer spacer – 75 barrels
   Formulation for one barrel

Seawater	0.9800 barrels
Safe-Vis OGS	1.0 gallons per barrel

   Formulation for 50 barrels

Seawater	74.0 barrels
Safe-Vis OGS	1.0 gallons per barrel

2. Continue to circulate seawater until solids content coming out of the wellbore is less than 0.1 percent by volume. Pay special attention to fluid prior, during and immediately after bottoms up. Note and record any changes if fluid color, solids content and NTU's.
3. Proceed to the next completion step.
   *** Monitor fluid pumped versus fluid returned, o**ne barrel in one barrel out.
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Setting And Activating Swell Packer
10-3/4" by 7-5/8"

1. 50 barrels, 2 - 25-barrel MPT's, of 12.5 ppg Synthetic Based Drilling fluid will be delivered in a Coast Guard Approved MPT. Oil water ratio of this fluid will be 80 / 20.
2. Prior to landing tieback and setting Swell Packer, pump the long way 50 barrels of 13.0 ppg SBM followed with 12.0 ppg inhibited Sodium Bromide. Corrosion inhibitor will be added only to annular fluids.
3. Both 12.5 ppg SBM and 12.5 ppg Sodium Bromide will be left in annulus as packer fluid.
4. See packer fluid recommendations for treatment of Sodium Bromide.

SafeTherm
7-5/8" Tieback

1. Prior to landing 7-5/8" tieback, reverse in 267 barrels of 12.5 ppg SafeTherm prior to landing 7-5/8" casing. This will place 12.5 ppg SafeTherm in the "B Annulus" from surface to 8500 feet. Volumes of SafeThem and Sodium Bromide will be adjusted when operations begin and final depths and volumes are known.

Perforating and Frac Packing
Fluid Loss Control

Fluid Loss Control

1. All Lost Circulation, HEC Polymer pills, are to be sheared and filtered through 10 micron nominal cartridge filters.
2. Run and report rheology of all lost circulation pills.
3. Expectations for HEC polymer pills

Rheometer Readings	Rheology at 70°F	Rheology at 150°F
600	*409	299
300	294	230
200	253	195
100	198	146
6	59	34
3	40	21
N	0.43	0.50
K	10,609	5123

*Denotes extrapolations – Scale only goes to 300 rpm's
Fann 35 – R1B1 rotor bob combination with a number one spring.

Solid free fluid loss control pill – one barrel formulation and order of addition

Shear and filter the LCM pill.
Run and report rheology.

1. Completion fluid 0.9762 barrels

2. Safe-Vis OGS 1.0 gallons
3. Run and report rheology of all lost circulation pills.
4. After spotting fluid loss pill, monitor well and report fluid losses.

   Mix for 60 minutes to allow polymers to fully yield. Shear and filter pill.

Safe-Link

Safe-Link fluid-loss-control product comprises a chemically modified, cross-linked cellulose polymer used primarily to control loss of clear brine fluid to the formation during completion or work over operations. SAFE-LINK additive controls fluid loss by applying a very viscous material across the formation face, virtually stopping the flow of brine into the formation. Safe-Link fluid-loss-control additive functions through a cross-linked polymer network that is held in place on the formation face. The effectiveness of this product is not dependent on bridging solids or on viscous drag within the formation matrix.

Safe-Link – Ten barrel formulation and order of addition

1. Completion fluid 254 gallons 0.6048 barrels
2. Safe-Vis OGS 6 gallons 0.0143 barrels
3. Safe-Link 32 5-gallon pails 0.3810 barrels

   Stir gently with a lightning mixer or paddle mixer to slurry the Safe-Link additive into viscosified completion fluid. Do not over shear the slurry; the slurry should be lumpy or stringy when pumped.

Packer Fluid Recommendations

10.0 ppg Calcium Chloride Left In The A Annulus

10.0 ppg Calcium Chloride will be treated and place as packer fluid in the A annulus.

Safe-Cor corrosion inhibitor is a modified, amine-type additive designed to protect all oilfield tubulars. Safe-Cor helps prevent general corrosion attack on casing, tubing and down hole tools in contact with completion fluids.

1. Myacide 25-G - Biocide
2. Safe-Scav CA is an oxygen scavenger, organic sulfur-free additive for use in calcium based completion fluids. It is a fast acting material which is effective even at low temperatures. Safe-Scav CA inhibits corrosion caused by the presence of dissolved oxygen in completion fluids.

   1 5-gallon pail of Safe-Scav NA per 100 barrels

Packer Fluid Treatment Chart

Product	Unit Size	Quantity To Add
Safe-Cor	Gallons	55 gallons per 100 barrels
Myacide GA-25	5-gallon pail	5 gallons per 200 barrels
Safe-Scav CA	5-gallon pail	1 5-gallon pail per 100 barrels

12.5 ppg Sodium Bromide Left In The C Annulus

12.5 ppg Sodium Bromide will be treated and place as packer fluid in the C annulus.

Safe-Cor corrosion inhibitor is a modified, amine-type additive designed to protect all oilfield tubulars. Safe-Cor helps prevent general corrosion attack on casing, tubing and down hole tools in contact with completion fluids.

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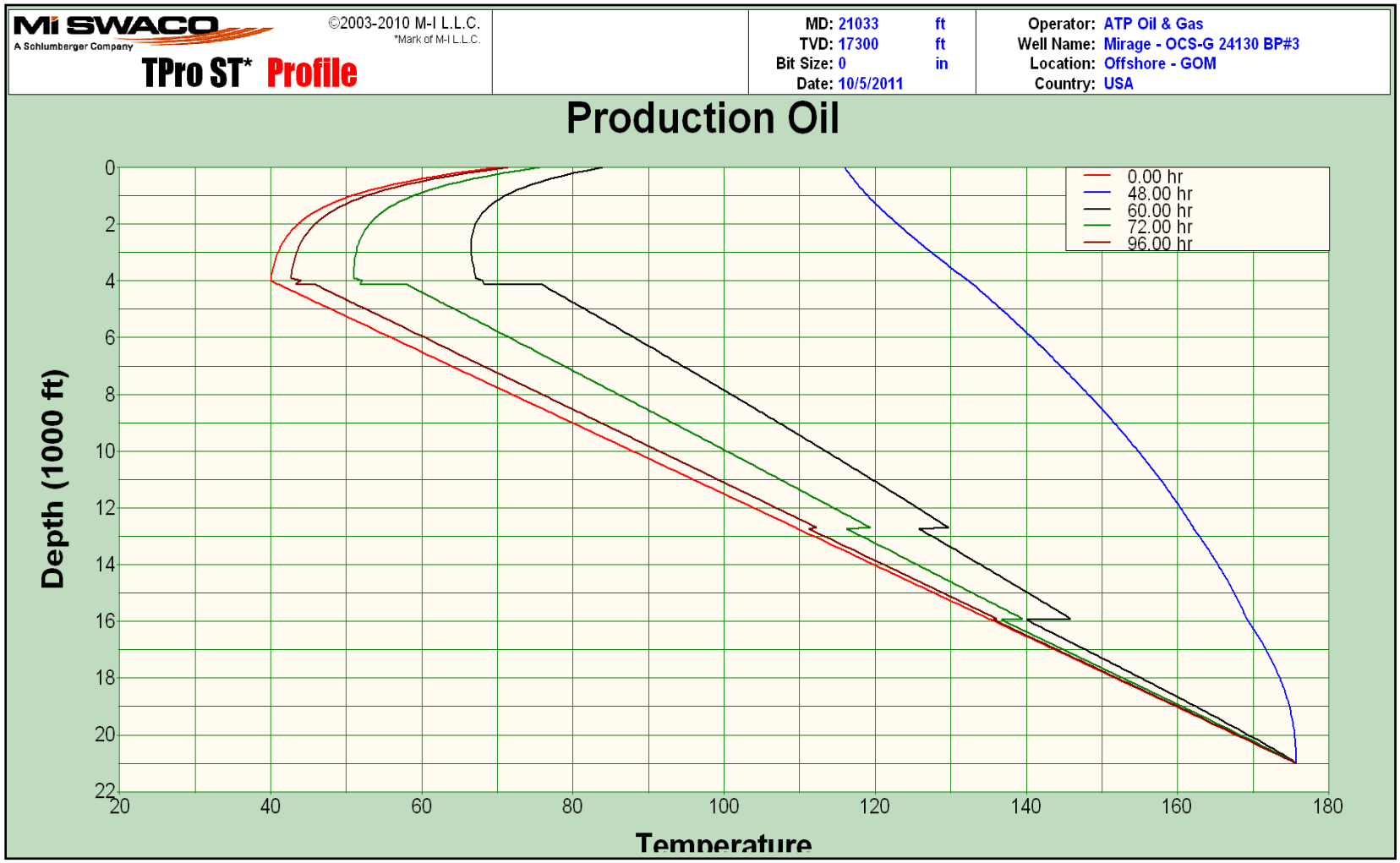
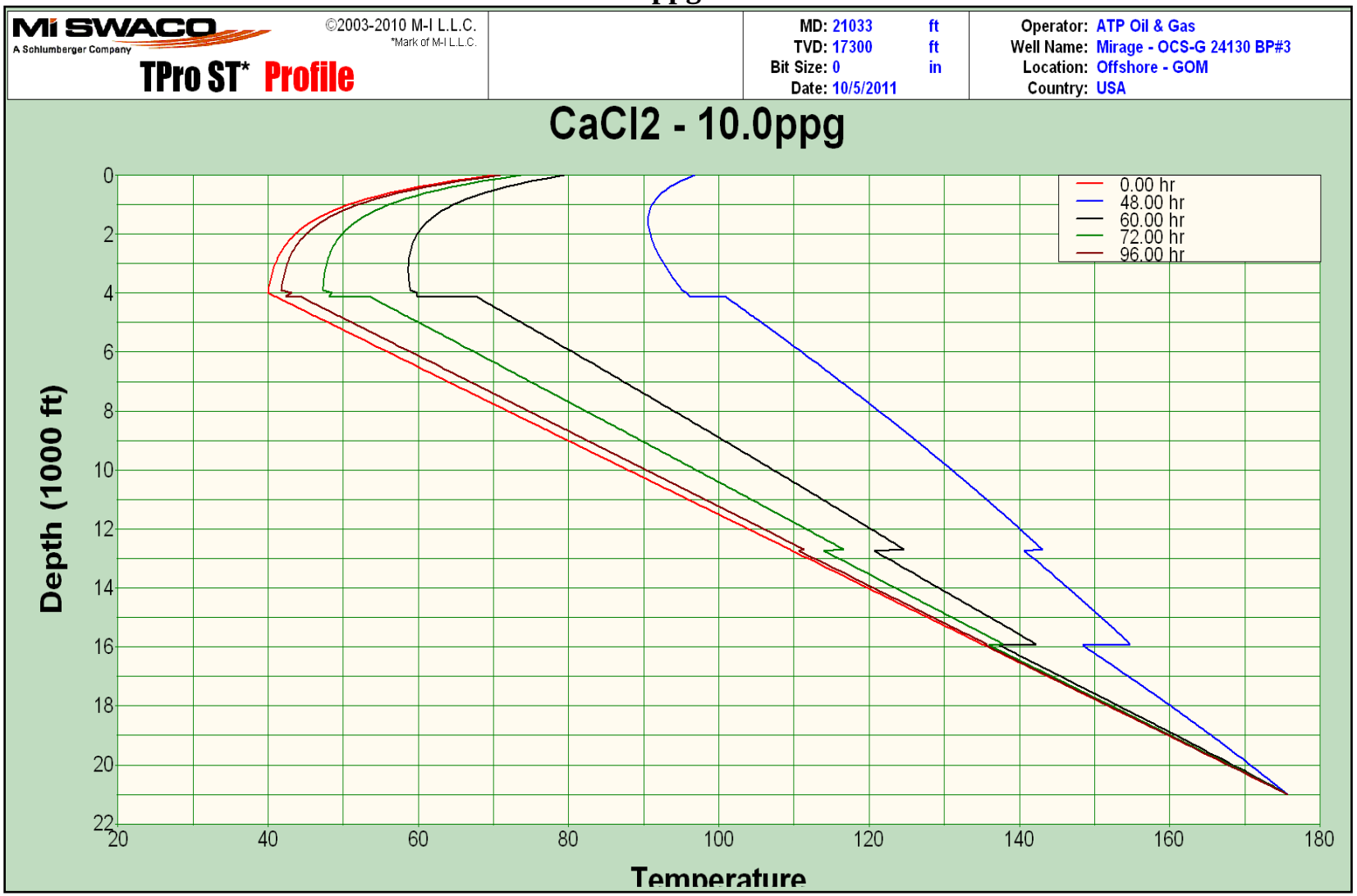
SafeTherm Modeling

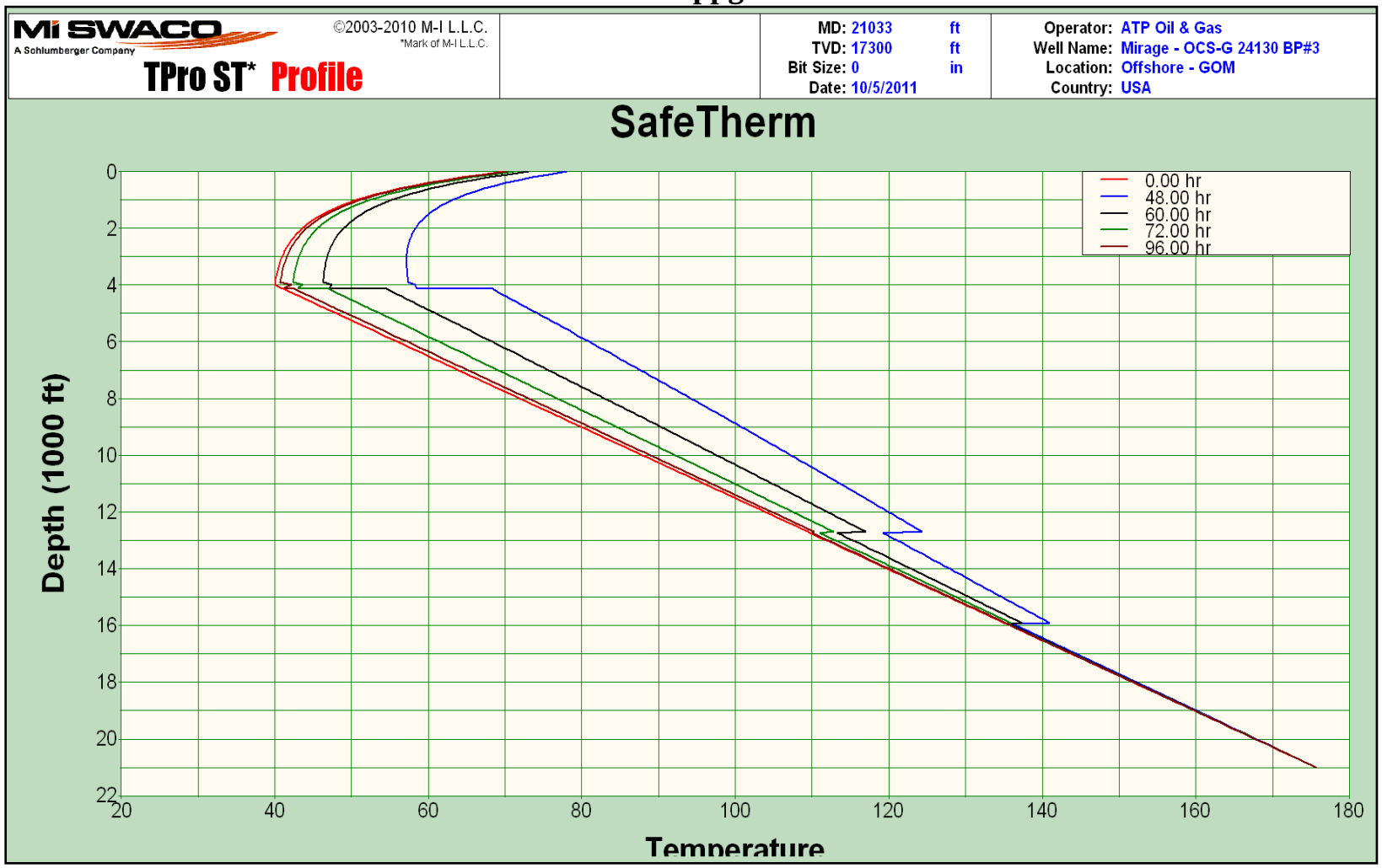
Produced Oil Model



“A” Annulus 10.0 ppg Calcium Chloride



“B” Annulus – 12.5ppg SAFETHERM



Predicted Annular Temperature Increase

"A" Annulus – 10.0 ppg CaCl2
"B" Annulus - 12.5 ppg SAFETHERM Insulating Packer Fluid

- **K= 0.204 BTU/hr-ft-F**
- **Cp= 0.53 BTU/lb-F**

"C" Annulus – 12.5 ppg NaBr2

	"A" Annulus ($7\ ^{5/8}$ x $3\ ^{½}$)	"B" Annulus ($10\ ^{3/4}$ x $7\ ^{5/8}$)	"C" Annulus ($13\ ^{5/8}$ x $10\ ^{¾}$)
Average Temp (°F) Increase (ML to 12734')	48	22	6
Calculated Pressure (psi) Increase due to ΔT	5000 - 5500	3000 – 3500	500 - 700

***This model assumes the each annulus began at formation temperature**

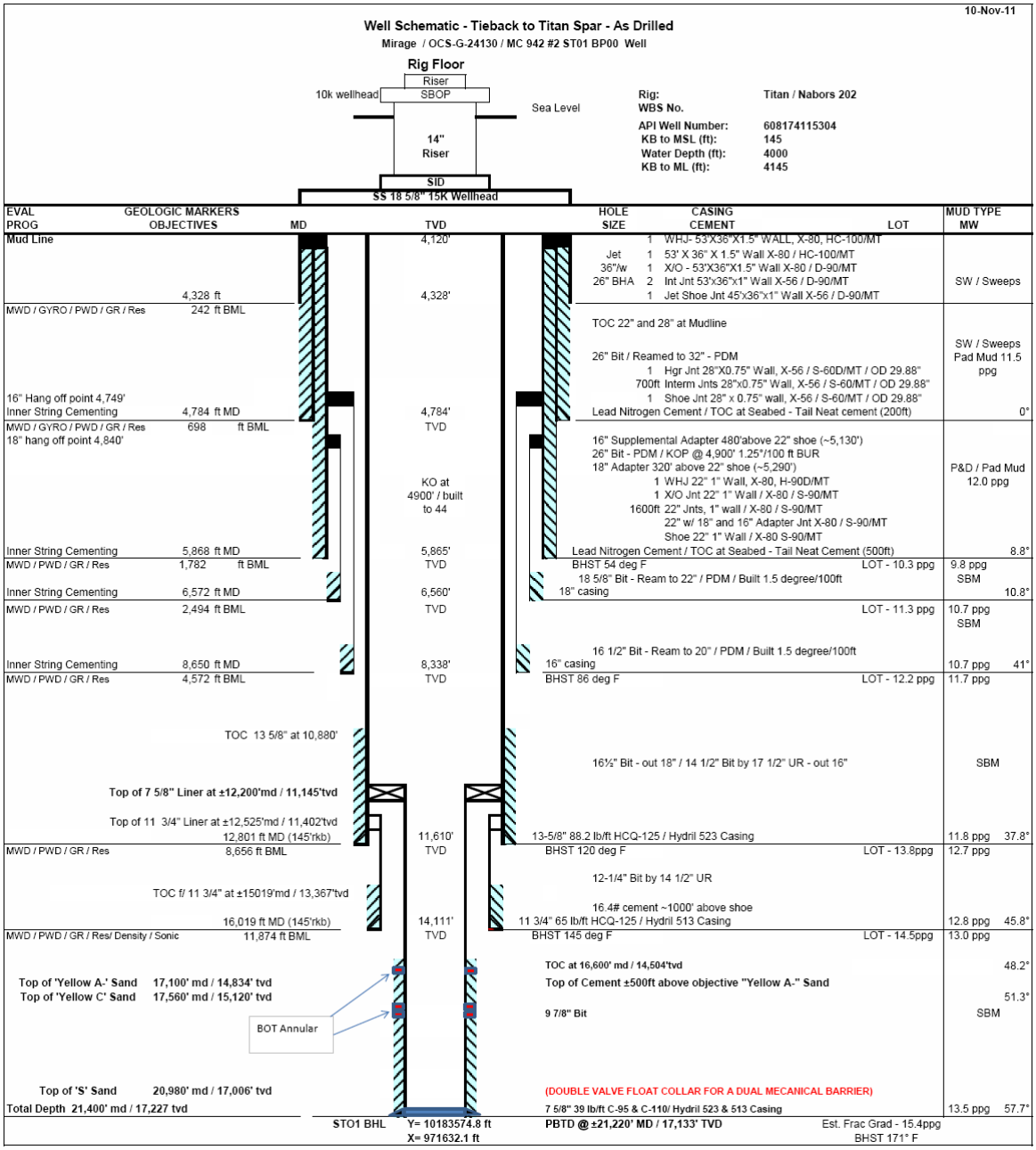
Predicted Production Oil Temperatures

Predicted Surface Arrival Temperature after Production has reached steady state @ rate of 10,000 bbl/day - 116 °F

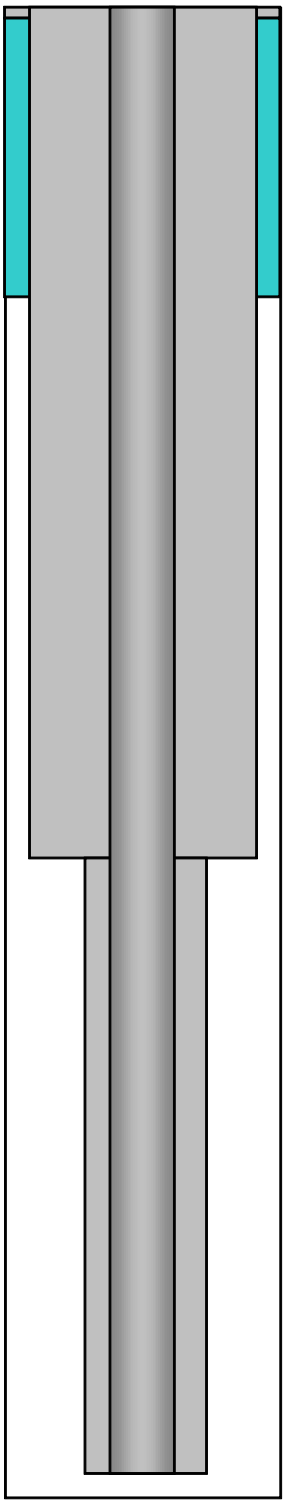
Predicted Production Temperature @ mud line during Shut In following steady flow @ rate of 10,000 bbl/day:

- 12 hrs Shut In - 76 °F
- 24 hrs Shut In - 58 °F
- 48 hrs Shut In - 46 °F

Proposed - Current Wellbore Schematic



Well Geometry

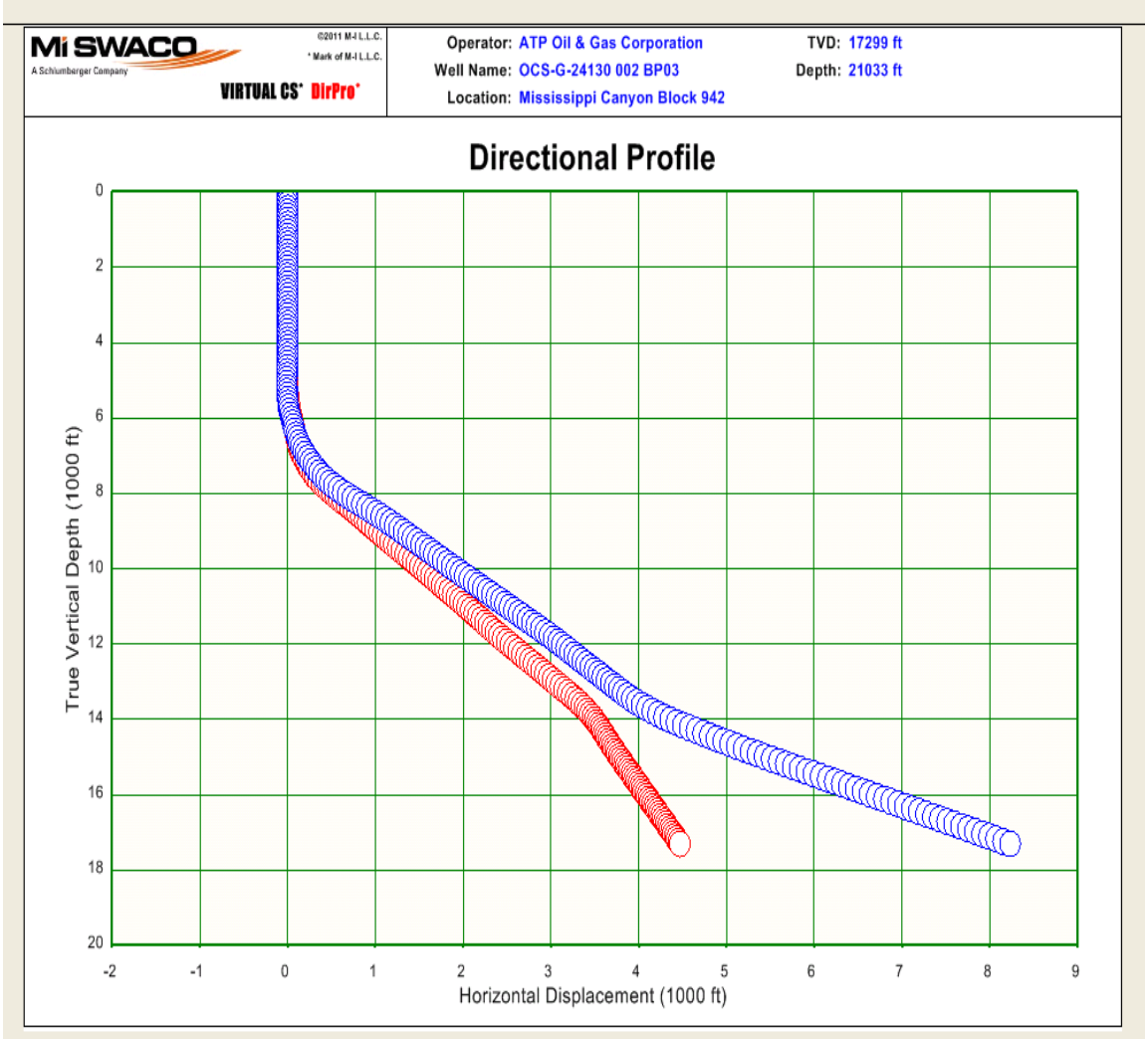


Operator	ATP Oil & Gas Corporation
Well Name	OCS-G-24130 002 BP03
Location	Mississippi Canyon Block 942
Comments	Side Track and Complete
TD/TVD	21033/17299
Water/Air Gap	4000/145

Ann Volume	1864.6 (bbl)	Film Thickness	0.047 (in)
WS Volume	227.9 (bbl)	WS Film Volume	6.4 (bbl)
Total Volume	2092.6 (bbl)	Ann Film Volume	26.8 (bbl)
Steel Volume	99.0 (bbl)	Chock Line Vol	0
Hole Volume	2191.5 (bbl)	Kill Line Vol	0
		Boost Line Vol	0

Length (ft)	CSG ID (in)	Pipe OD (in)	Pipe ID (in)	TJ Len (in)	TJ OD (in)	TJ ID (in)		
145	12.375	4.000	3.340	***	***	***		
4000	12.375	4.000	3.340	***	***	***		
8055	12.375	4.000	3.340	***	***	***		
534	6.625	4.000	3.340	***	***	***		
8299	6.625	4.000	3.340	***	***	***		

Length (ft)	nn Volun (bbl)	Vol WS (bbl)	Vol Steel (bbl)	Ann Cap (bbl/ft)	Cap WS (bbl/ft)	Cap Steel (bbl/ft)	Cap Hole (bbl/ft)	
145	19.3	1.6	0.7	0.1332	0.0108	0.0047	0.1488	
4000	532.9	43.3	18.8	0.1332	0.0108	0.0047	0.1488	
8055	1073.1	87.3	37.9	0.1332	0.0108	0.0047	0.1488	
534	14.5	5.8	2.5	0.0271	0.0108	0.0047	0.0426	
8299	224.9	89.9	39.1	0.0271	0.0108	0.0047	0.0426	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* Mark of M-I L.L.C.
VIRTUAL CS* DirPro*
Operator: ATP Oil & Gas Corporation
Well Name: OCS-G-24130 002 BP03
Location: Mississippi Canyon Block 942
TVD: 17299 ft
Depth: 21033 ft
Directional Profile
True Vertical Depth (1000 ft)
0
2
4
6
8
10
12
14
16
18
20
-2
-1
0
1
2
3
4
5
6
7
8
9
Horizontal Displacement (1000 ft)

ATP Oil & Gas Corporation
OCS-G-24130 No. 2 ST00 BP03
Mississippi Canyon Block 942

Formation Information

S-Sand Information

Bottom Hole Temperature	163 degrees Fahrenheit
Reservoir Pressure	11,336 psi
Measured Depth (MD)	20,370 to 20,593 feet
True Vertical Depth (TVD)	16,885 to 17,025 feet

Fluid density Required With Respect To Selected Overbalance

Overbalance	Required Surface Density	Equivalent Static Density
psi	ppg	ppg
0	12.08	12.91
200	13.03	13.14
250	13.08	13.20
300	13.14	13.25
350	13.20	13.31
400	13.26	13.37

“S” Sand

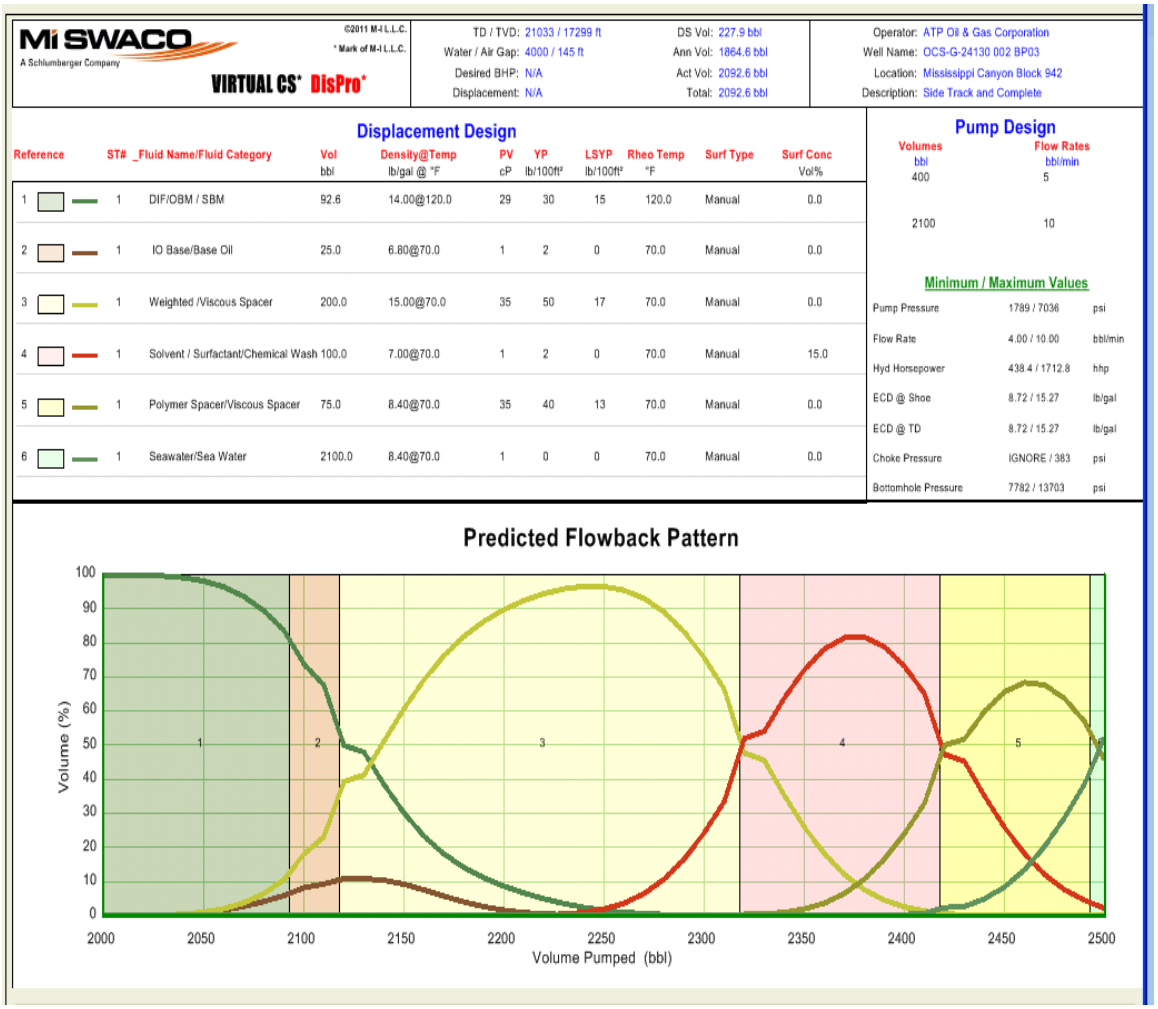
Based On A Reservoir Pressure of 11,336 psi
A Bottom Hole Temperature of 163 Degrees Fahrenheit
True Vertical Depth At Top Perforation Is 16,885 feet

Brine Density Profile

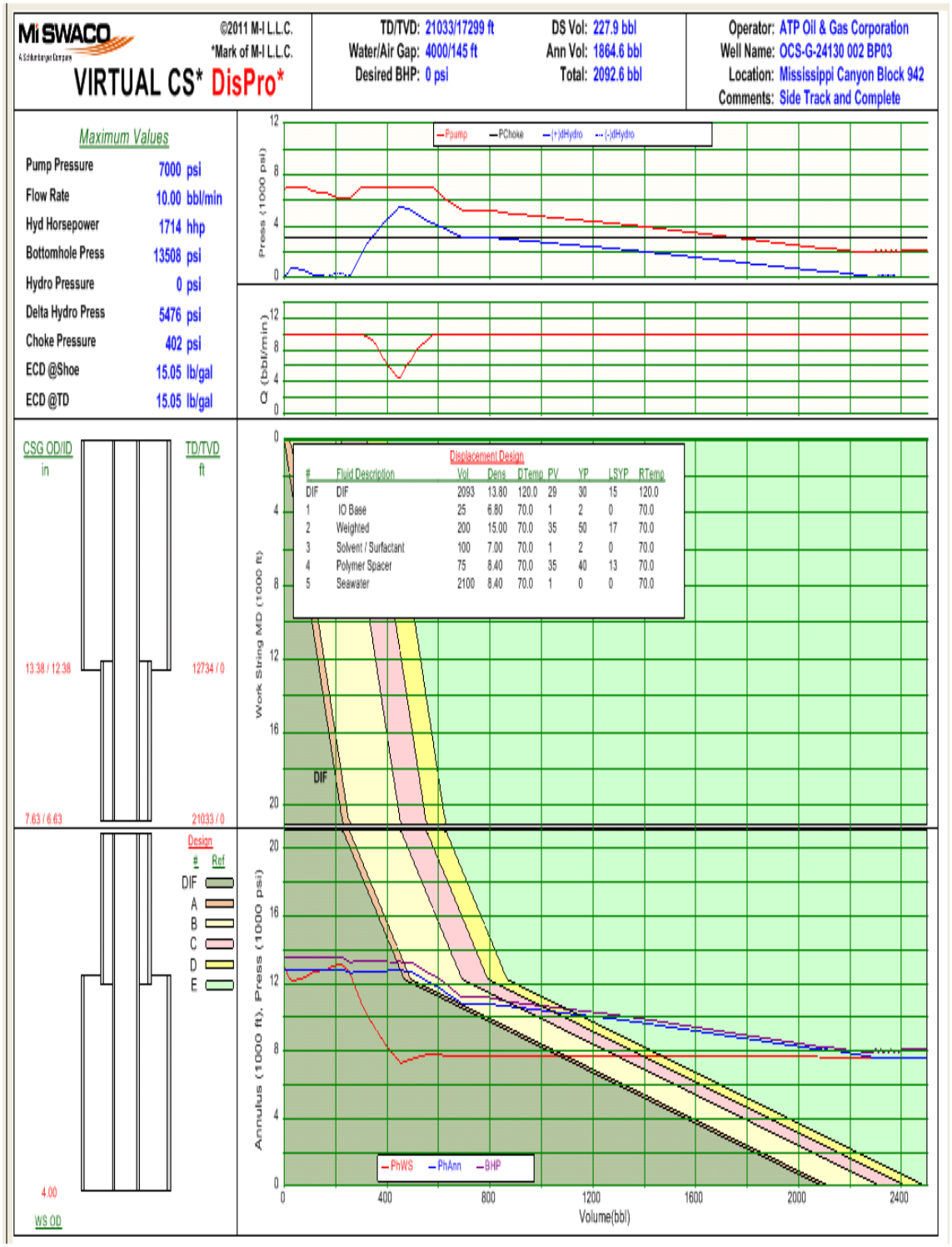
Operator	ATP Oil & Gas Corporation	Density (lb/gal)	13.30	Surface Pressure (psi)	0
Well Name	OCS-G-24130 002 BP03	Surface Temp (°F)	70	Brine Type	CaCl2 / CaBr2
Location	Mississippi Canyon Block	Bottomhole ESD (lb/gal)	13.42	Option	Surface Density f
Description	Side Track and Complete	BH Temp (°F)	176	Date	9/13/2011
TD/TVD (ft)	21033/17299	BH Pressure (psi)	12064		
Water/Air Gap (ft	4000/145	Overbalance (psi)	440		

TVD	Temp	Density	ESD	Pressure	TVD	Temp	Density	ESD	Pressure	TVD	Temp	Density	ESD	Pressure
ft	℉	lb/gal	lb/gal	psi	ft	℉	lb/gal	lb/gal	psi	ft	℉	lb/gal	lb/gal	psi
0	70	13.30	13.30	0	7400	70	13.47	13.43	5164	14800	143	13.38	13.43	10329
200	68	13.31	13.31	138	7600	72	13.47	13.43	5304	15000	145	13.37	13.43	10468
400	67	13.32	13.31	277	7800	74	13.46	13.43	5444	15200	146	13.37	13.43	10607
600	65	13.33	13.32	415	8000	76	13.46	13.43	5584	15400	148	13.37	13.42	10746
800	64	13.33	13.32	554	8200	78	13.46	13.43	5724	15600	150	13.36	13.42	10885
1000	62	13.34	13.32	693	8400	80	13.46	13.43	5864	15800	152	13.36	13.42	11024
1200	61	13.35	13.33	831	8600	82	13.46	13.43	6004	16000	154	13.36	13.42	11163
1400	59	13.36	13.33	970	8800	84	13.46	13.43	6144	16200	156	13.35	13.42	11302
1600	58	13.37	13.34	1109	9000	86	13.45	13.43	6284	16400	158	13.35	13.42	11441
1800	56	13.38	13.34	1248	9200	88	13.45	13.43	6424	16600	160	13.35	13.42	11579
2000	55	13.39	13.35	1387	9400	90	13.45	13.43	6564	16800	162	13.34	13.42	11718
2200	53	13.39	13.35	1527	9600	92	13.45	13.43	6703	16900	164	13.34	13.42	11787
2400	51	13.40	13.35	1666	9800	93	13.45	13.43	6843	17100	170	13.32	13.42	11926
2600	50	13.41	13.36	1805	10000	95	13.44	13.43	6983	17299	176	13.30	13.42	12064
2800	48	13.42	13.36	1945	10200	97	13.44	13.43	7123					
3000	47	13.43	13.37	2084	10400	99	13.44	13.43	7262					
3200	45	13.44	13.37	2224	10600	101	13.44	13.43	7402					
3400	44	13.44	13.37	2364	10800	103	13.43	13.43	7542					
3600	42	13.45	13.38	2504	11000	105	13.43	13.43	7681					
3800	41	13.46	13.38	2643	11200	107	13.43	13.43	7821					
4000	39	13.47	13.39	2783	11400	109	13.43	13.43	7961					
4200	39	13.47	13.39	2924	11600	111	13.42	13.43	8100					
4400	41	13.47	13.40	3064	11800	113	13.42	13.43	8240					
4600	42	13.47	13.40	3204	12000	115	13.42	13.43	8379					
4800	44	13.47	13.40	3344	12200	117	13.42	13.43	8519					
5000	46	13.47	13.40	3484	12400	119	13.41	13.43	8658					
5200	48	13.47	13.41	3624	12600	121	13.41	13.43	8798					
5400	50	13.47	13.41	3764	12800	123	13.41	13.43	8937					
5600	52	13.47	13.41	3904	13000	125	13.40	13.43	9076					
5800	54	13.47	13.41	4044	13200	127	13.40	13.43	9216					
6000	56	13.47	13.42	4184	13400	129	13.40	13.43	9355					
6200	58	13.47	13.42	4324	13600	131	13.40	13.43	9494					
6400	60	13.47	13.42	4464	13800	133	13.39	13.43	9634					
6600	62	13.47	13.42	4604	14000	135	13.39	13.43	9773					
6800	64	13.47	13.42	4744	14200	137	13.39	13.43	9912					
7000	66	13.47	13.42	4884	14400	139	13.38	13.43	10051					
7200	68	13.47	13.43	5024	14600	141	13.38	13.43	10190					

Anticipated Spacer Flow Back Pattern



Mirage Project
Direct Displacement Hydraulics
Anticipated Maximum Pump Pressure Is 7000 psi



Rig Clean-Up Check List

Check List

1. Always clean from top to bottom.
2. M-I SWACO recommends transferring all drilling fluid from rig to transferring vessel prior to taking on any completion fluids.

	Active System		Reserve System
☐	All active pits	☐	All Reserve pits
☐	Rim lines	☐	Rim lines
☐	Equalizer lines	☐	Equalizer lines
☐	Hoppers	☐	Hoppers
☐	Ditches and troughs	☐	Ditches and troughs
☐	Lines to cement unit	☐	Mixing hoppers
☐	Casing fill up lines	☐	Mixing centrifugal suction lines
☐	Mixing hoppers	☐	Mixing centrifugal discharge lines
☐	Mixing centrifugal suction lines	☐	Gun lines
☐	Mixing centrifugal discharge lines	☐	Lines to and from active system
☐	Gun lines	☐	Lines to and from cement unit
☐	Lines to and from rig floor	☐	Take on lines
☐	Lines to and from cement unit	☐	Overboard lines
☐	Lines to and from trip tank		
☐	Take on lines		**Trip Tanks**
☐	Overboard lines	☐	Trip tanks
		☐	Lines to active system
	Sand Traps or Settling System	☐	Lines from active system
☐	All sand traps	☐	Lines to rig floor
☐	Sand traps equalizer lines	☐	Lines from rig floor
☐	Sand trap centrifugals, suction and discharge		
			Mud Pumping Equipment
	Cement Unit	☐	High pressure suction manifold
☐	Clean cement unit	☐	Mud pumps
☐	Centrifugals	☐	Mud pump suction lines
☐	Suction and discharge lines	☐	Mud pump discharge lines
☐	Lines to rig floor	☐	Mud pump pop off lines
☐	Lines to well head	☐	Mud pump bleed off lines
☐	Pressure relief lines	☐	Charging centrifugal pumps
☐	Overboard relief line	☐	Charging centrifugal lines in and out
		☐	Charging centrifugals bleed off lines
	Solids Control Equipment	☐	Charging centrifugals suction lines
☐	Desander	☐	Charging centrifugals discharge lines
☐	Desander suction line		
☐	Desander discharge line		**Filtration Equipment**
☐	Desilter	☐	Lines from active system to filtration
☐	Desilter suction line	☐	Lines from filtration to active system
☐	Desilter discharge line	☐	Lines to any reserve system
☐	Mud cleaner	☐	Lines to any other brine tankage

☐	Mud cleaner discharge line		
☐	Centrifuge	**Boat Transfer Lines**	
☐	Centrifuge suction line	☐	Pressure test transfer lines
☐	Centrifuge discharge and line	☐	Lines from boat to fluid storage tankage
☐	Degasser	☐	Lines from rig to boat tankage
☐	Degasser suction line		
☐	Degasser discharge line	**Other Equipment**	
☐	Gas buster	☐	Chickasns
☐	Gas buster suction line	☐	General service pumping equipment
☐	Gas buster discharge line		
☐	Gumbo box		
☐	Header box		
Well Control Equipment			
☐	Choke manifold		
☐	Diverter		
☐	Choke manifold lines in		
☐	Choke manifold lines out		
☐	Annular preventor or preventors		
☐	Lower kill line		
☐	Upper kill line		
☐	Lower choke line		
☐	Upper choke line		
☐	Standpipes		
☐	Top drive		

ANY AND ALL SURFACE LINES OR PIECE OF EQUIPMENT WHICH MAY COME INTO CONTACT WITH COMPLETIN FLUIDS SHALL BE FLUSHED, CLEANED AND VERIFIED BY FLUID REPRESENTATIVE ON LOACTION.

A positive shut-off valve shall be installed on the low end of the take-on and discharge hoses, leading up to the rig from the supplying vessel (boat). Closing the valve when the line is not in use will prevent spillage onto the boat's deck and / or overboard entering the water.

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