

TUBULAR INSPECTION

- ❖ CASINGS
- ❖ TUBING
- ❖ DRILL PIPE & HEAVY WEIGHT
- ❖ DRILL COLLAR & B.H.A
- ❖ PIPE YARD MANAGEMENT
- ❖ HARDBANDING

Depending on your requirements, AMOSCO is able to provide a variety of Casing related services ranging from the Basic / Standard Maintenance Casing Services to the more critical inspection services.

STANDARD CASING SERVICES

SERVICE	DESCRIPTION
VISUAL BODY INSPECTION	A thorough visual inspection of possible noticeable external damages inflicted is performed; most damages encountered arise from handling of the casing, such as major dents and mashes. Other types of flags will be external corrosion, laps, and straightness.
VISUAL THREAD INSPECTION (VTI)	Both pin and box ends are thoroughly cleaned and visually evaluated for any damages, such as dents, corrosion, galled threads, etc.
API DRIFTING (Full-Length)	A drift, cut to strict API specifications, is passed through the full-length bore of each length of pipe in order to check for mashed or dented areas along the pipe. If an area has been located, the location of the defect will be noted on the inspection report.

OPTIONAL CASING MAINTENANCE SERVICE

SERVICE	DESCRIPTION
CLEANING (Internal / External)	Wire brushing or Rattling to remove rust, scale and other debris.
COATING (Internal / External)	A thin rust preventative coating is applied internally or externally to maintain the integrity of the casing.
HARDNESS TESTING	By using a special device with calibration blocks, our technicians are able to go on location, test, compare and confirm the grade of pipe.
STRAIGHTENING	Bent pipe is straightened using a ram-type, hydraulic press.

STANDARD CASING SERVICES

SERVICE	DESCRIPTION
ELECTROMAGNETIC INSPECTION (EMI)	Using a specialized Electromagnetic unit, detection of transverse or 3-dimensional defects can be located.
ULTRASONIC WALL THICKNESS (UT)	Wall thickness is verified by taking random ultrasonic readings or during EMI Inspection to verify and prove-up areas in question.
API THREAD GAUGING	Using various API gauges, such as thread taper, lead and depth to measure the connection in order to verify the connection is within API Tubing Connection specifications.

Depending on your requirements, AMOSCO is able to provide a variety of Tubing related services ranging from the Basic/Standard Maintenance Tubing Services to the more critical inspection services.

STANDARD TUBING SERVICE

SERVICE	DESCRIPTION
VISUAL BODY INSPECTION	A thorough visual inspection of possible noticeable external damages inflicted is performed; most damages encountered arise from handling of the casing, such as major dents and mashes. Other types of flags will be external corrosion, laps, and straightness.
VISUAL THREAD INSPECTION (VTI)	Both pin and box ends are thoroughly cleaned and visually evaluated for any damages, such as dents, corrosion, galled threads, etc.
API DRIFTING (Full-Length)	A drift, cut to strict API specifications, is passed through the full-length bore of each length of pipe in order to check for mashed or dented areas along the pipe. If an area has been located, the location of the defect will be noted on the inspection report.

OPTIONAL TUBING MAINTENANCE SERVICE

SERVICE	DESCRIPTION
CLEANING (Internal / External)	Wire brushing or Rattling to remove rust, scale and other debris.
COATING (Internal / External)	A thin rust preventative coating is applied internally or externally to maintain the integrity of the casing.
HARDNESS TESTING	By using a special device with calibration blocks, our technicians are able to go on location, test, compare and confirm the grade of pipe.
STRAIGHTENING	Bent pipe is straightened using a ram-type, hydraulic press.



DRILL PIPE & HEAVY WEIGHT DRILL PIPE

Depending on your requirements, AMOSCO is able to provide a variety of Drill Pipe related services ranging from the Basic/Standard Maintenance Drill Pipe Services to the more critical inspection services.

STANDARD DRILL PIPE SERVICES

SERVICE	DESCRIPTION
VISUAL BODY INSPECTION	A thorough visual inspection of possible noticeable external damages inflicted is performed; most damages encountered arise from handling of the casing, such as major dents and mashes. Other types of flags will be external corrosion, laps, and straightness.
VISUAL THREAD INSPECTION (VTI)	Both pin and box ends are thoroughly cleaned and visually evaluated for any damages, such as dents, corrosion, galled threads, etc.
ELECTROMAGNETIC INSPECTION (EMI)	Using a specialized Electromagnetic unit, detection of transverse or 3-dimensional defects can be located.
REFACING	Seals found to be damaged or corroded are refaced to the limitation of API RP-7G.

OPTIONAL DRILL PIPE INSPECTION SERVICE

SERVICE	DESCRIPTION
TH HILL DS-1 SERVICES	If the customer's requires DS-1 inspection, AMOSCO can inspect the customer's assets in accordance with TH Hill DS-1 Specifications rather than standard API RP-7G Specifications.
SPECIAL END-AREA INSPECTION	Shearwave ultrasonic inspection is performed on the upsets and friction welded areas of drill pipe. This service is performed to locate fatigue cracks. Inspecting for longitudinally oriented defects and for transverse defects
ULTRASONIC WALL THICKNESS (UT)	Wall thickness is verified by taking random ultrasonic readings or during EMI Inspection to verify and prove-up areas in question.
API THREAD GAUGING	Using various API gauges, such as thread taper, lead and depth to measure the connection in order to verify the connection is within API Tubing Connection specifications.

OPTIONAL DRILL PIPE MAINTENANCE SERVICES

SERVICE	DESCRIPTION
HARDBANDING	In order to protect the clients drill pipe tool joints and center wear pads from excessive wear while drilling in abrasive environments, hardbanding is applied in 1 inch bands around the circumference of the tool joints and center wear pads. Various mesh sizes of tungsten can be applied with the band. As an alternative to tungsten, AMOSCO is also capable of applying Pinnacle Pinnchrome and Arnco. The application reduces casing wear while protecting the tool joint of the drill pipe.
BUILD-UP	Controlled automatic welding procedures are used to build-up the outside diameter of worn tool joints to their original size. Instead of scrapping drill pipe whose tool joint OD's are below specification, applying the same concept as hardbanding is able to literally reconstruct the OD of your tool joints back to specification, thus salvaging the premium pipe body and saving the client money.
STRAIGHTENING	Bent pipe is straightened using a ram-type, hydraulic press.
CLEANING (Internal / External)	Wire brushing or Rattling to remove rust, scale and other debris.
COATING (Internal / External)	A thin rust preventative coating is applied internally or externally to maintain the integrity of the casing.
MILL SLOTTING	Mill slotting is performed by cutting a round or elongated slot into the body or tool joints of drill stem components. In order to cut into and along the pipe, a drill specifically designed for this use is employed. Like the device used for hardness testing, the size and weight of the slotted machine allows our operators to go on-site and perform the job at the clients location. Due to the nature of this service, client specifications are to be followed providing that it does not force the material to fall out of API specifications.



DRILL COLLAR & BOTTOM HOLE ASSEMBLIES

Depending on your requirements, AMOSCO is able to provide a variety of Drill Collar related services ranging from the Basic/Standard Maintenance Drill Collar Services to the more critical inspection services.

STANDARD DRILL COLLAR SERVICES

SERVICE	DESCRIPTION
VISUAL BODY INSPECTION	A thorough visual inspection of possible noticeable external damages inflicted is performed. Other types of flags will be external corrosion, laps, and straightness.
VISUAL THREAD INSPECTION (VTI)	Both pin and box ends are thoroughly cleaned and visually evaluated for any damages, such as dents, corrosion, galled threads, etc.
REFACING	Seals found to be damaged or corroded are refaced to the limitation of API RP-7G.

OPTIONAL DRILL COLLAR INSPECTION SERVICES

SERVICE	DESCRIPTION
TH HILL DS-1 SERVICES	If the customer's requires DS-1 inspection, AMOSCO can inspect the customer's assets in accordance with TH Hill DS-1 Specifications rather than standard API RP-7G Specifications.
HOT-SPOT TESTING (for Monel Materials)	These hot spots can accurately track down the small changes in magnetic flux density caused by variations in permeability. Using this machine, coupled with linear amplifiers and properly biased, the sensors form an extremely sensitive detector set that not only locate the hot spots caused by improper heating, curing or processing, but also evaluates their security.
ULTRASONIC WALL THICKNESS (UT)	Wall thickness is verified by taking random ultrasonic readings or during EMI Inspection to verify and prove-up areas in question.
API THREAD GAUGING	Using various API gauges, such as thread taper, lead and depth to measure the connection in order to verify the connection is within API specifications.

OPTIONAL DRILL COLLAR MAINTENANCE SERVICES

SERVICE	DESCRIPTION
HARDBANDING (Drill Collar)	In order to protect the clients' drill collars from excessive wear while drilling in abrasive environments, hardbanding is applied in 1 inch bands around the circumference of the both ends of the joint. Various mesh sizes of tungsten can be applied with the band. As an alternative to tungsten, AMOSCO is also capable of applying Pinnacle Pinnchrome and Arnco. The application reduces casing wear while protecting the tool joint of the drill pipe.
BUILD-UP (Drill Collar)	Controlled automatic welding procedures are used to build-up the outside diameter of worn tool joints to their original size. Instead of scrapping drill collars whose OD's are below specification, applying the same concept as hardbanding is able to literally reconstruct the OD of your tool joints back to specification, thus salvaging the premium pipe body and saving the client money.
STRAIGHTENING	Bent pipe is straightened using a ram-type, hydraulic press.
CLEANING (Internal / External)	Wire brushing or Rattling to remove rust, scale and other debris.
COATING (Internal / External)	A thin rust preventative coating is applied internally or externally to maintain the integrity of the casing.
MILL SLOTTING	Mill slotting is performed by cutting a round or elongated slot into the body or tool joints of drill stem components. In order to cut into and along the pipe, a drill specifically designed for this use is employed. Like the device used for hardness testing, the size and weight of the slotted machine allows our operators to go on-site and perform the job at the clients location. Due to the nature of this service, client specifications are to be followed providing that it does not force the material to fall out of API specifications.

Pipe yard Management

The services described hereunder are for the total management of the pipe yard(s). This would include inspection and maintenance of tubulars received into stock, during the stocking period and shipments to the rig locations. Rig returns are also included. All casing, tubing, pup joints and drive pipe owned by the client would fall under the management service should you decide to proceed with the project.

Please note that contractors' pipes are not included in this proposal.

The tubular management and inspection will be based on the same principles as our current contracts with various clients in the Region and has been operated by AMOSCO for more than ten years.

Therefore, our track record in providing this kind service is well established.

The following is to be considered as a scope of work that AMOSCO is pleased to offer.

However, this service is not limited to the description found down below and can be accommodated to suit our customers' needs.

It can be increased / extended to any other activities required. Likewise, it can also be sized down.

Hence, we do not submit any price on this particular issue as we would need the feed back from the Customer in order to assess the needs and propose a quotation covering the bespoke and defined service to provide and achieve.

SERVICES TO BE PROVIDED BY AMOSCO.

NEW AND RIG RETURNED TUBULARS.

All new and rig returned tubulars received at the pipe yard will receive a visual inspection to verify conformity of the quantity with the cargo manifest. Any damaged thread protectors or pipe bodies with obvious damage will be reported.

Tubulars received in bundles will be unbundled and laid out on inspection racks ready for inspection. Upon inspection, tubulars found to have damaged threads or bodies will be reported and segregated from the good lengths, which will be taken into stock. All rejected lengths will be put to one side for repair or scrap, at your option.

When good lengths are taken into stock the items will be listed by stock number, rack location number, OD size, grade, weight, range, total footage as well as individual tally lengths.

A customer purchase order number can also be added for identification and tracking purposes, if required.

The following is the scope of work recommended for the above. It may be extended, in the event that the Customer requires additional services.

INSPECTION SERVICES.

- Full Length API Drift.
- Visual Thread Inspection.
- Application of storage thread compound.
- Cleaning and reinstallation of Thread Protectors.
- Full Length tally.
- Supervision of Racking.

OPTIONAL SERVICES.

- Internal/External Water Blast.
- Internal Turbo Rattling.
- Electro Magnetic Inspection (EMI) Up to 5-1/2" OD.
- Internal/External Coating.
- Tubular Stock

MAINTENANCE.

Tubulars kept in stock will be monitored on a regular basis. Items requiring maintenance would be reported to the customer representative and any maintenance would require approval by the customer prior to the work being carried out.

RIG DESPATCHING.

When the Customer will require tubulars to be despatched to a rig he would inform the AMOSCO representative in writing of the quantity and type of tubulars required.

They would need to specify the total footage, the rig location or well number and the date that the shipment is scheduled to leave.

The AMOSCO representative would supervise the preparation and the bundling of the tubulars and prepare a cargo manifest stating the type of goods, the total footage, the number of bundles, the total weight with the rig or location of destination.

Once the tubular goods will have left the yard the stock count will be adjusted accordingly.

REPORTING.

A daily, weekly or monthly report will be handed to the Customer representative. The report will cover the items inspected, maintained and shipped during that period. It will also cover yard labour time, crane and forklift usage, in the event that the Customer does not have a permanent forklift and / or crane on site.

A copy of the stock inventory will be given to the Customer representative on a weekly basis, in order for your representative to monitor stock levels. This report could be submitted more frequently, if required.

Reports would also be issued to Customer each time inspection is performed on tubular goods stating pipes accepted, rejected and would give the reasons for any rejection.

A detailed inventory would be put onto disc in an Excel format or in the format of the Customer preference.

MISCELLANEOUS.

Other items such as lifting equipment could also be controlled under the pipe yard management agreement and recorded in the inventory if not controlled by the warehouse.

If items were returned from locations using slings, the AMOSCO representative would visually inspect the slings for damage, and mark any faulty pieces for scrap.

Slings not colour coded would be sent for load testing and the good parts reintegrated with the stock. All such matters would be reported weekly.

EQUIPMENT TO BE PROVIDED BY AMOSCO.

Listed below is the equipment required to perform the services under the pipe yard management and inspection agreement.

The following lists some of the equipment that would be provided by AMOSCO.

- 1 X 10,000 PSI Water Blaster and accessories Internal / External Cleaning up to 20".
- 1 X Computer, Printer & Software.
- 1 X Emi Inspection Consol unit for sizes 2-3/8 to 5 -1/2".
- 1 X Airless Internal \ External Coating unit.
- 1 X Set Air Jacks.
- 1 X Electric Air Compressor.
- 1 X 175 CFM Air compressor.
- 1 X Set OD Gauges and setting bars, 2-3/8 to 5".
- 1 X Buggy Heads 5", 4-1/2", 3-1/2", 2-3/8" ea.
- 1X Ultrasonic Wall Thickness measurement unit.
- 1 X Ultrasonic Probe.
- 3 X Electrical Extension Cables.
- 1 X Drill Heavy Duty.
- 1 X Angle Grinder 7" and 4.1/2".
- 1 X Set Rattling Equipment 2-3/8 to 13-3/8" complete with Hoses Heads and Motors.

- 1 X 20 Foot Container.
- 1 X Tool Box.
- 1 X AC Yoke.
- 1 X Black Light Unit.
- 1 X Black Light Ultraviolet Meter.
- 1 X Magnetizing Coil.
- 1 X Centrifuge Tube.
- 1 X Magnetometer Field Indicator.
- 2 X Inspection Mirrors.
- 1 X OD calliper.
- 1 X ID calliper.
- 2 X 12" rules.
- 2 X 50' tally tapes.
- 4 X Various Size Pipe Wrenches.
- 2 X Buttress Thread Profile Gauge.
- 1 X 8 Round Thread Profile Gauge.
- 1 X Pit Depth Gauge.
- 1 X Vernier Calliper.
- 1 X Drift Tape.
- 1 X High Intensity **Spotlight**

EQUIPMENT AND ITEMS TO BE PROVIDED BY CUSTOMER.

The following items would need to be provided by the Customer.

- Pipe yard.
- Pipe handling Equipment (i.e. crane, forklift trucks etc.).
- Office area for the AMOSCO supervisor.
- Pipe racks support.
- Storage area for AMOSCO equipment (20-Foot Container).
- Electrical power supply.
- Yard labour crew.
- Internal communications access (i.e. Phone, Radio).

CONSUMABLE ITEMS.

Consumable items are discretionary and variable and are impossible to factor into a fixed monthly cost. Therefore all consumable items including (but not limited to) the following would need to be provided by the Customer .

- Cleaning fluids.
- Thread lubricants.
- Paints and brushes.
- Coating materials.
- Wire cleaning and dope brushes.
- Rags.
- Water supply for water blasting.
- Slings.
- Wooden dividers strips for pipe racking.
- Pipe wedges for pipe racking.
- Thread protectors.
- Pipes markers.
- Diesel and / or other fuel for air compressors, water blaster and other plant equipment if needed.

However, AMOSCO would be in a position to supply the above at a unit price to be agreed upon.

OTHER ITEMS.

Normally, one supervisor would handle all work related to inspection, maintenance and yard management.

In the event that the workload increases, and an additional inspector would be required, AMOSCO will oblige.

However, all other workforce on the yard(s) is to be provided by the Customer.



HARDBANDING & TOOL JOINT BUILD-UP

AMOSCO Offers this services on:

NEW & USED DRILL PIPE.

APPLICATION OF TUNGSTEN HARD BAND OR CHROME ALLOY.

Drill Pipe Sizes 2-7/8" through to 5-1/2" OD.

On standard Drill Pipe it is recommended to have three one inch bands applied to both pin and box connections using 60 - 80 tungsten mesh or a Chrome alloy hardband of the clients preference.

NEW & USED HEAVY-WATE DRILL PIPE.

APPLICATION OF TUNGSTEN HARD BAND.

Drill Pipe Sizes 3-1/2" through to 5" OD.

On heavyweight Drill Pipe it is recommended to have three one inch bands applied either side of the centre wear pad, five one inch bands applied to both pin and box connections using 40-60 tungsten mesh.

Note that the our price will include pre-heat and post cooling of the tool joints along with all the consumable items required to perform the work. The internal plastic coating is protected by water circulating through the internal surface of the Drill Pipes and Heavyweight.

In the event that the Customer has experienced eccentric wear on Drill Pipe tool joints it would be possible to rebuild the tool joint prior to hard banding application. Following is the list of tool joint available for build-up.

BUILDUP OF WORN DOWN DRILL PIPE TOOL JOINTS.

O. D. Size

All tools less than 5"

5" - 5-7/8"

6" - 7"

BUILDUP OF WORN DOWN HEAVYWEIGHT DRILL PIPE TOOL JOINTS.

OD Size

All tools less than 5"

5" - 5-7/8"

6" - 7"



HARDBANDING & TOOL JOINT BUILD-UP

AMOSCO Offers this services on:

NEW & USED DRILL PIPE.

APPLICATION OF TUNGSTEN HARD BAND OR CHROME ALLOY.

Drill Pipe Sizes 2-7/8" through to 5-1/2" OD.

On standard Drill Pipe it is recommended to have three one inch bands applied to both pin and box connections using 60 - 80 tungsten mesh or a Chrome alloy hardband of the clients preference.

NEW & USED HEAVI-WATE DRILL PIPE.

APPLICATION OF TUNGSTEN HARD BAND.

Drill Pipe Sizes 3-1/2" through to 5" OD.

On heavyweight Drill Pipe it is recommended to have three one inch bands applied either side of the centre wear pad, five one inch bands applied to both pin and box connections using 40-60 tungsten mesh.

Note that the our price will include pre-heat and post cooling of the tool joints along with all the consumable items required to perform the work. The internal plastic coating is protected by water circulating through the internal surface of the Drill Pipes and Heavyweight.

In the event that the Customer has experienced eccentric wear on Drill Pipe tool joints it would be possible to rebuild the tool joint prior to hard banding application. Following is the list of tool joint available for build-up.

BUILDUP OF WORN DOWN DRILL PIPE TOOL JOINTS.

O. D. Size

All tools less than 5"

5" - 5-7/8"

6" - 7"

BUILDUP OF WORN DOWN HEAVYWEIGHT DRILL PIPE TOOL JOINTS.

OD Size

All tools less than 5"

5" - 5-7/8"

6" - 7"

BUILDUP OF DRILL COLLAR BOX CONNECTIONS.

OD Size

All tools less than 5"

5" - 5-7/8"

6" - 7"

7-1/8" - 8"

8-1/8" - 9"

9-1/8" - 9-1/2"

Please Note that build-up on the tool Joints will be made up 3/16 of an inch higher than the finished tool joint requirement. After Build-up the tool joint will need to be turned down by machining to give the desired end finish. This would include grooves for grade identification etc.

All box connections will require a face and chase on the connections after the build-up to stress relieve the box connections with the pin connections requiring bevelling or re facing at the machine shop.

Machine Shop work is also included in our services.