CANADIAN ASSOCIATION OF OILWELL DRILLING CONTRACTORS ELECTRONIC TOUR SHEET STANDARD SPECIFICATION VERSION 3.0.4

OFFICIAL RELEASE

November 2011

Contact:
Nancy Malone
Canadian Association of Oilwell Drilling Contractors

Canadian Association of Oilwell Drilling Contractors

ELECTRONIC TOUR SHEET STANDARD SPECIFICATION

1.0 DEFINITION OF THE STANDARD

1.1 Introduction

This document is meant to provide sufficient direction to enable any software developer to create a "CAODC-approved" Electronic Tour Sheet (ETS) digital file that can be imported without the need for human intervention into applications designed for that purpose. The intent of this format is to assist in the accurate capture of tour data and make it easier to integrate the data with the systems that process it.

1.2 XML

Starting with ETS Version 3.0, the format of the Electronic Tour Sheet is based on the Extensible Markup Language 1.0 specification commonly referred to as XML 1.0. ETS files must follow the XML specifications as documented by the World Wide Web Consortium (W3C). The current specification for XML 1.0 is available over the Internet at http://www.w3.org/TR/2004/REC-xml-20040204. This document does not explicitly document most XML-specific details as it is assumed the reader is familiar with XML.

XML Schemas (xsd files) based on the W3C XML Schema 1.0 specification (available at http://www.w3.org/TR/2004/REC-xmlschema-0-20041028) are supplied to facilitate dealing with Tour Sheet data stored within an ETS file. An XML Schema is generally considered the successor to a Document Type Definition (DTD) and supports more features, such as namespaces and data types, than a DTD can provide. In order to reduce the development and maintenance of the ETS standard, DTD files are not supplied. If required for a particular implementation of the ETS standard, the supplied XML Schemas can be translated into DTDs using one of the many available translation software programs.

The XML namespace for Version 3.0.4 of the ETS standard is http://www.caodc.ca/ETS/v3

A detailed list of the differences between version 3.0 of the ETS standard and version 2.2 (the previous version) are available in Appendix C – Version 2.2 to Version 3.0 Change Log.

Appendix D lists the changes between ETS Version 3.0 and ETS Version 3.0.1.

Appendix E lists the changes between ETS Version 3.0.1 and ETS Version 3.0.2.

Appendix F lists the changes between ETS Version 3.0.2 and ETS Version 3.0.3.

Appendix G lists the changes between ETS Version 3.0.3 and ETS Version 3.0.4.

An example ETS file is listed in Appendix H.

1.3 Components of the Standard

The ETS Version 3.0.4 standard is composed of the following components:

- This document (Electronic Tour Sheet Standard Specification) providing the overall specifications of the standard.

- *ETS_v3_4.xsd* – an XML Schema File describing the structure of the XML that defines an ETS file.

- *ETS_v3_4_types.xsd* – an XML Schema File describing various types of data within an ETS file.

- *ETS_v3_4_picklists.xsd* – an XML Schema File describing the set of valid values expected as the value for various fields within an ETS file not including units of measure.

- *ETS_v3_4_units.xsd* – an XML Schema File describing the sets of valid units of measure used within an ETS file.

- *ETS_v3_4_example.xml* – an ETS file showing an example of the format.

- A web-based validation application and web service that can be used to check specific ETS files for compliance with this standard.

- Sample layout of a printed tour sheet that, as of ETS Version 3.0, consists of more than one page in order to accommodate the extra data recorded in a file.

1.4 Naming Conventions

XML is a case-sensitive specification where all XML element types and attribute names within the file are considered case-sensitive. For example, the names Ets, ETS and ets are not the same and are all distinctly different names. The ETS standard generally follows the OASIS *Universal Business Language (UBL) Naming and Design Rules* for XML constructs.

1.4.1 Element Type Names

Element type names are composed of one or more English language words strung together without spaces. The capitalization of element type names follows the pattern of capitalizing each word within the name including the first letter. This capitalization is commonly referred to as Pascal Case. An example of this convention would be the element type name `BitRecord`.

The immediate parent element of each element type that can repeat has the same type name as the child element but is pluralized (ends with the letter "s"). That is, the element type name of the repeating child element has the same type name as its parent but is singular (not plural). An example of this convention is the elements `DayTours` and `DayTour`. `DayTour` is the possibly repeating child element of the `DayTours` Element.

1.4.2 Attribute Names

Attribute names are formed in the same manner as element names but the first letter is not capitalized. This capitalization is commonly referred to as Camel Case. An example of this convention would be the attribute name `tourId`.

1.4.3 Pick List Values

Defined values (pick lists) are generally in all upper-case letters as they mainly were in previous versions of the ETS standard. An example of this convention would be the value `TRIPLEX`.

However, there are exceptions to this naming rule. Unit of measure values are capitalized using the convention commonly used for the unit. Examples would be `kPa` for kilopascals or `Nm` for Newton metres.

1.5 Hierarchical Structure

Starting with ETS Version 3.0, the structure of the data in an ETS file is no longer a linear list of records. The format takes advantage of the hierarchical nature of XML to maintain meaningful relationships within the data. This structure is illustrated in the following diagram.
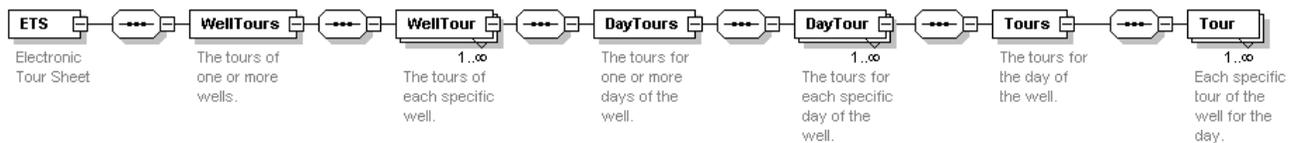
Specifically, the general XML structure of an ETS file follows the form:

```xml
<ETS ...>
  <WellTours>
    <WellTour>
      ...
      <DayTours>
        <DayTour>
          <Tours>
            <Tour tourId="1">
              ...
            </Tour>
            <Tour tourId="2">
              ...
            </Tour>
            ...
          </Tours>
        </DayTour>
        ...
      </DayTours>
      ...
    </WellTour>
    ...
  </WellTours>
</ETS>
```

1.5.1 ETS Root Level

The root element of the file is named `ETS` and contains all other elements. The attributes of the `ETS` element provide details about the file itself such as when the file was generated, who generated it and how.

1.5.2 Well Tours Level

The `WellTours` element within the root `ETS` element represents the next logical level in the hierarchy and contains a set of child `WellTour` elements. Each instance of a `WellTour` element contains all the details of the tours for a specific well. Tour data for multiple wells can be recorded within one file by using multiple `WellTour` elements.

1.5.3 Day Tours Level

The `DayTours` element within each `WellTour` contains the details of one or more days. Each instance of a `DayTour` element within a `DayTours` element contains all the tours of a well for one specific day. Multiple days of tour data for a well can be recorded within one ETS file by using multiple `DayTour` elements.

1.5.4 Tour Level

The `Tours` element within each `DayTour` contains the details of the tours for one day. Each instance of a `Tour` element within a `Tours` element contains all the details that are specific to one tour. One or more tours for each day can be recorded within one ETS file by using the appropriate number of instances of the `Tour` element.

1.6 General Design Principles

The following principles have been used during the definition of the standard.

1. In order to be compatible with Version 2.2 of the ETS standard, all information recorded in Version 2.2 of the ETS standard have been retained in some manner. Appendix C can be used to determine the mapping between the data in Version 2.2 and Version 3.0.

2. The units of measure used for values default to the same units as used in Version 2.2 of the ETS standard. These units are some multiple of the International System of Units (SI) but can be overridden by specifying a valid unit in the corresponding unit attribute provided for that purpose.

3. Calculated fields have not been included in this version of ETS. This prevents possible data integrity issues where the recorded calculated value disagrees with the recorded values used in the calculation of that field. Calculated values do not need to be recorded within the file as they can be calculated as required within application software.

4. When both date and time values are recorded, one combined date/time field is defined as opposed to one field for the date and a separate one for the time. This allows the XML Schema xsd:dateTime data type to be used and promotes the

use of a similar data type within ETS software. A combined field simplifies implementation of sorting, filtering and searching of the data.

1.7 Instances of Time

An instance of time is a defined data type (ets:timeValue) in the ETS standard. An instance of time is recorded using a time derived from the built-in XML Schema type for time. The hours and minutes are in the format HH:MM:00 where HH is the hour of the day with valid values from 00 to 23 and MM is the number of minutes within that hour. Time values are restricted to a resolution of 15 minutes so the valid values for MM are 00, 15, 30, or 45. The value of 00:00:00 refers to the start of a day.

In cases where a time may need to refer to the start or end of a day, the defined data type ets:dateTimeValue is used in the standard. This type includes the date along with the time. The end of a day is recorded as the start of the next day. For example, the value 2006-08-01T00:00:00-07:00 would be used to store the end time of July 31, 2006 or the start of August 1, 2006 in Mountain Standard Time.

A time zone must be specified as part of a time value to remove ambiguity during transitions to or from Daylight Savings Time. Because time values are not recorded in real time and are generally entered after the fact, ETS implementations must implement a mechanism to determine the correct time zone during data entry. This mechanism can be as simple as prompting the user to indicate their desired time value when an entered time lies within the hour of transition from Daylight Savings Time to Standard Time.

1.8   Data Types

All the element and attribute values in an ETS file have an associated type. Each of these types is either a built-in XML Schema simple type or a type derived from one. The built-in XML Schema types are prefixed by xsd: and the derived ETS types are prefixed with ets:. These base types (other than pick lists and units of measure) are:

Data Type	Definition
xsd:string	An XML Schema built-in simple type representing an ordered finite length of characters. For the purposes of ETS, legal characters include tab, carriage return, line feed, and the printable ASCII characters of values 32 (space) to 126.
xsd:boolean	An XML Schema built-in simple type representing the concept of true or false. Valid values are `true` (or `1`) and `false` (or `0`).
xsd:decimal	An XML Schema built-in simple type representing a subset of the real numbers, which can be represented by decimal numerals. The values are recorded as of a finite-length sequence of decimal digits (0-9) separated by a period as a decimal indicator. An optional leading + or - sign is allowed. If the sign is omitted, "+" is assumed. Leading and trailing zeroes are optional. If the fractional part is zero, the period and following zero(es) can be omitted. Examples are -1.23, 12678967.543233, +100000.00, 210.

	Each specific value in the ETS standard is restricted to a specific maximum number of digits and decimal precision as indicated in the Size column of the tables in Sections 3 to 6 of this document. For example, a size value of 5.2 indicates that allowed values can have up to 5 digits with 2 or those digits after the decimal point.
xsd:nonNegativeInteger	An XML Schema built-in simple type representing the standard mathematical concept of non-negative integer numbers from the infinite set {0,1,2,...}.
	Each specific value in the ETS standard is restricted to a specific maximum number of digits as indicated in the Size column of the tables in Sections 3 to 6 of this document.
xsd:positiveInteger	An XML Schema built-in simple type representing the standard mathematical concept of non-negative integer numbers from the infinite set {1,2,3,...}.
	Each specific value in the ETS standard is restricted to a specific maximum number of significant digits as indicated in the Size column of the tables in Sections 3 to 6 of this document.
xsd:dateTime	An XML Schema built-in simple type representing a date with a time value. For details of how values of this type are stored in the file, see: http://www.w3.org/TR/2004/REC-xmlschema-2-20041028/datatypes.html#dateTime.
	The type is defined with an optional timezone component. When no timezone is specified, the time is to be asumed to be in the local zonetime. It is strongly advised to include the timezone so that there is no misinterpretation as to what is the local timezone.
	An example of a dateTime value is `2005-10-20T13:30:05-07:00` which represents 1:30:05 PM on 20 October 2005 Mountain Standard Time (or Pacific Daylight Savings Time). This is 20:30:05 UTC.
xsd:date	An XML Schema built-in simple type representing a date. For details of how values of this type are stored in the file, see: http://www.w3.org/TR/2004/REC-xmlschema-2-20041028/datatypes.html#date.
	The type is defined with an optional timezone component. When no time zone is specified, the time is to be asumed to be in the local time zone. It is strongly advised to include the timezone so that there is no misinterpretation as to what is the local timezone.
	An example of a date value is `2005-10-20-07:00` which represents 20 October 2005 Mountain Standard Time (or Pacific Daylight Savings Time).
ets:timeValue	A type derived from the xsd:time XML Schema built-in simple type in which the minutes are restricted to the values of `00`, `15`, `30` or `45` and a time zone value must be specified. Examples of valid values are `00:00:00-07:00`, `12:15:00-08:00`, `16:30:00-07:00`. The value of 00:00:00 represents the start of a day within the specified

	time zone. The value 24 is not a valid value for the hour.
ets:dateTimeValue	A type derived from the xsd:dateTime XML Schema built-in simple type in which the minutes are restricted to the values of `00`, `15`, `30` or `45` and a time zone value must be specified. The beginning of a day has the value of 00:00:00 for the time. The end of a day is recorded using the next day's date and the value 00:00:00 for the time. Examples of valid values are `2006-07-31T00:00:00-07:00` or `2006-07-31T16:30:00-08:00`.
ets:idValue	An ETS-specific type derived from the xsd:string type. It defines a restricted format identifier used to uniquely identify an item. The value cannot include leading, trailing or imbedded whitespace and the minimum length is 1 character.
ets:nameValue	An ETS-specific type derived from the xsd:string type. It defines a user-defined identifying name. Whitespace is trimmed and the minimum length is 1 character.
ets:textValue	An ETS-specific type derived from the xsd:string type. It defines freeform text intended for interpretation only by humans. All whitespace is preserved and the minimum length is 1 character.

The ETS fields that are restricted to specific values (pick lists) are of a type defined in the pick list XML Schema. These types are defined as a set of enumerated values from the *xsd:string* XML Schema built-in type. These pick lists are listed in Appendix A.

The units of measure ETS fields are of a type defined in the units XML Schema. These types are defined as a set of enumerated values from the *xsd:string* XML Schema built-in type. The units of measures used in the ETS standard are listed in Appendix A.

1.9 Revisions to the Standard

Generally, if ETS files are generated and read in the manner documented in Section 2.0, an implementation can support future revisions to the ETS standard. Each revision will be assigned a new version number that is greater than the preceding one.

Revisions and new versions of the ETS standard will occur in various ways depending upon the scope of the revision. These include:

- Additional elements may be introduced.
- Additional attributes may be introduced.
- The XML namespace may change.

1.10 Discrepancies

The XML Schema files supplied as part of this standard are to help in the generation, validation and reading of ETS files. As such, they are likely to be better maintained than this document. In the case of any discrepancy between this document and the available XML Schemas, the schema files should be considered correct.

2.0   IMPLEMENTATION OF THE STANDARD

2.1 Generating ETS Files

To help maintain consistency and to allow future revisions to the ETS standard, the following practices should be observed when generating an ETS file.

1. ETS files must follow the W3C XML specifications, meet the requirements of the ETS standard's XML Schemas and not violate any of the specific data constraints specified within this document. In short, it must successfully pass validation by the validation application included as part of the ETS standard.

2. Always define the namespace on the ETS element using the `xmlns` attribute.

3. An element with a plural type name must only be written to the file when it will have one or more child elements. For example, the `Bits` element would be written only if one or more of the child `Bit` element would be written. The XML Schema generally enforces this rule.

4. Each file may contain one or more tours on one or more days for one or more wells.

5. Some elements and attributes do not have to be present. If there is no data to record for an optional element or attribute, that item should not be present in the file.

6. If a text value is shorter than the maximum specified length, leading and trailing spaces should be stripped.

7. Any text value that exceeds the standard's specified maximum length will cause the resulting ETS file to be invalid. If available data is longer than the ETS standard allows the data must be truncated to the maximum length allowed before being written to the file.

An example ETS file is listed in Appendix H.

2.2 Reading ETS Files

To help maintain consistency and to allow for future revisions to the ETS standard, the following practices should be observed when reading an ETS file.

2.2.1 Non-Validating Parser

Observe the following if an XML parser that does not validate against the XML Schemas is used.

1. Do not assume an element's attributes will be found in any particular order.

2. Ignore all elements and attributes that are present but were not expected.

3. Treat elements and attributes that were expected but are not present as having the default value as specified by the standard or no value if no default is specified.

4. When an element with a plural type name (ends in "s") is found in the file, it can be assumed there will be at least one corresponding child element. For example, if a `Boilers` element is detected it can be assumed it will have one or more `Boiler` child elements.

2.2.2 Validating Parser

If an XML parser that validates against XML Schemas is used, it will need to have access to the set of XML Schema files for each version of ETS it expects to validate against. It can select the appropriate set of *xsd* files by first reading the value of the `etsVersion` attribute from the root `ETS` element. After a successful validation (or if appropriate *xsd* files are not available), the parser should then observe all the practices as listed above for non-validating parsers.

2.3 Pick Lists

Some of the data fields (jurisdiction for example) within the ETS standard are restricted to a specific set of values. Other fields (employee position for example) have a defined set of common values that could be used but implementations are permitted to add their own set of values. These lists of values are referred to as pick lists. ETS software applications can use these lists as appropriate for the situation. For example, an implementation can populate dropdowns to enhance the data entry process and reduce the occurrence of data errors. The ETS validation application also uses some of these pick lists as part of its validation process. For ETS Version 3.0.4, the XML Schema files *ETS_v3_4_picklists.xsd* and *ETS_v3_4_units.xsd* contain the definition of all pick lists.

The pick list values defined at the time when this document was created are listed in Appendix A – Pick List Values. However, the values listed in this document are for illustration purposes only and may not be the most up-to-date. The most up-to-date pick lists are available for download over the Internet from the CAODC web site at http://www.caodc.ca/ets. These values are maintained by CAODC and can change over time. The ETS validation application uses these posted pick lists as part of its validation process so it will always validate against the most up-to-date lists.

2.4 File Naming Conventions

Previous versions of the ETS standard included a naming convention for naming ETS files. Starting with ETS Version 3.0, the increased flexibility in the set of information stored in the file does not lend itself to any one particular naming convention. As such, the naming of ETS files is now left up to each implementation of the standard.

As an example, if only one tour sheet (day of a well) is stored per ETS file, each file could follow a naming convention such as:

- First three characters: ETS

- Second four characters: contractor abbreviation

- Third group of four characters: rig number or name

- Fourth group of eight characters: date in the format of CCYYMMDD

- Fifth group of two characters: tour sheet number and revision

with each group separated by an underscore.

Two examples using this convention would be:

> ETS_PREC_0114_19990615_1B.xml
> ETS_EXCA_0004_19990101_2A.xml

However, other naming conventions would need to be followed for ETS files containing tours over multiple days, the tours for more than one rig or the tours for multiple contractors.

2.5 Display and Printing of ETS Data

Some data fields in this ETS standard are not present on the current printed CAODC paper tour sheet or supported by previous versions of the electronic tour sheet. With each version of the standard, each implementation will have to determine when and how to obtain and display additional data.

Fitting all the data from an ETS file on to a single one-page CAODC tour sheet report will be difficult for three reasons:

1. The length of text fields may be larger than can be reasonably accommodated.

2. There are fields that can unnecessarily reduce available space, as these fields may not be relevant in all cases.

3. The ETS standard allows for more records than can be reasonably accommodated.

For these reasons, a printed tour sheet should consist of a primary summary report similar to the existing tour sheets plus include additional reports showing the data that is not reported on the primary document. Specific implementations must make choices about which data is reported and where based on operational or billings perspectives.

To illustrate the layout of a printed tour sheet, the standard includes sample layouts of the various pages of a tour sheet. These are available at http://www.caodc.ca/ets.

2.6 Additional Proprietary Data

A particular implementation of the ETS standard may have a need to include additional information within an ETS file that has not been accommodated as part of the standard. A specific element named `Others` is available for this purpose as a child element of the root `ETS` element, each `WellTour` element, each `DayTour` element and each `Tour` element. Any required data not captured by the ETS standard can be placed within one or more instances of an `Other` element within each `Others` element. Through the use

of the `id` attribute on the `Other` element, each implementation can define its own data. For more details of the `Others` elements, see the appropriate subsection of the following sections of this document.

2.7 Validation

A publicly available web-based ETS validation application has been developed as part of the ETS standard. The application allows individual ETS files to be uploaded and validated to help ensure consistency between the various implementations of the standard. To help maintain confidentially, neither the uploaded ETS files nor the data within them are physically stored by the application. They are simply read for validation purposes only.

The application's validation of an ETS file includes the following tasks.

1. The ETS file is first checked to insure it is a well-formed XML document.

2. The ETS file is checked against the ETS standard XML Schemas.
   The XML Schemas enforce data types, ranges, lengths, required/optional and picklist restrictions. These constraints are generally documented with the element details in Sections 3 to 6.

3. Additional data constraints not enforced by the XML Schemas are checked.
   These include the constraints listed in Appendix B – Additional Constraints.

The validation application can be accessed from a web browser on the Internet using the URL: http://www.caodc.ca/ets. In addition, a validation web service callable from ETS applications is available at: http://www.caodc.ca/ETSValidator/Service.asmx.

3.0 ETS ROOT XML ELEMENT

This root element of an ETS XML file is the ETS element. It contains all the other elements of the ETS file.
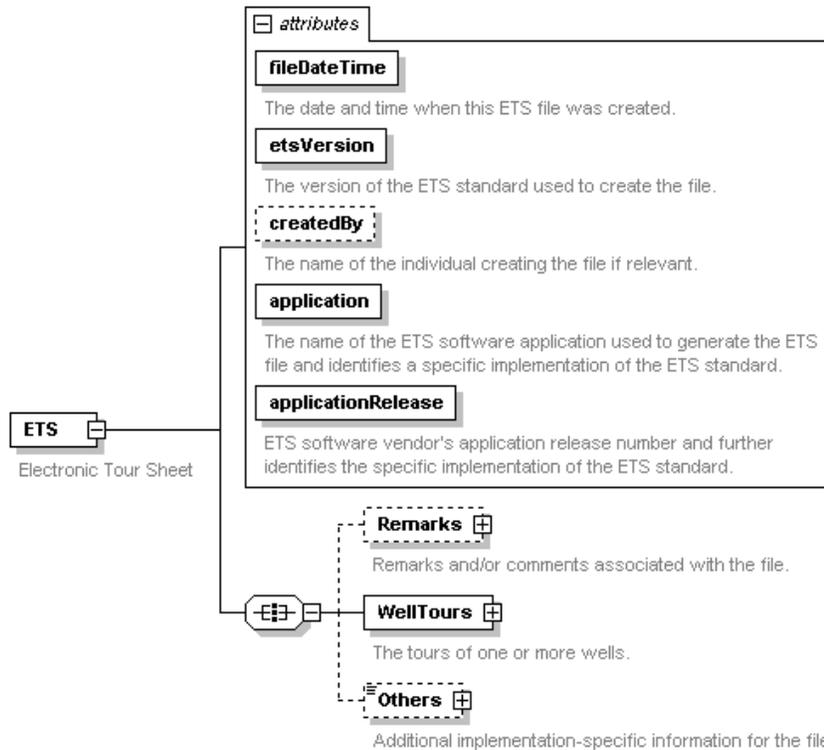
The attributes of the ETS element define the conditions on which the XML data was produced.

Attributes

Name	Type	Use	Size	Description / Constraints
fileDateTime	xsd:dateTime	required		The date and time when this ETS file was created.
etsVersion	xsd:string	required		The version of the ETS standard used to create the file. Must have the value "3.0.4".
createdBy	ets:nameValue	optional	50	The name of the individual creating the file if relevant.
application	ets:nameValue	required	36	The name of the ETS software application used to generate the ETS file and identifies a specific implementation of the ETS standard.
applicationRelease	ets:nameValue	required	36	ETS software vendor's application release number and further identifies the specific implementation of the ETS standard.

Child Elements

Name	Content	Use	Description / Constraints
Remarks	elements	optional	Remarks and/or comments associated with the file.
WellTours	elements	required	The tours of one or more wells.
Others	elements	optional	Additional implementation-specific information for the file.

3.1 ETS/Remarks Element

The Remarks element is an optional element that allows general text to be included in the file.

Child Elements

Name	Content	Use	Size	Description / Constraints
Remark	ets:textValue	1 or more	1000	The text of a remark or comment. The contents represents the complete text of the comments entered at one particular time

White space and new lines are preserved.

The order of these elements corresponds to the order in which comments were entered. |

3.2 ETS/WellTours Element

The WellTours element is a required element that contains the details of all the tours stored in the file.

Child Elements

Name	Content	Use	Description / Constraints
WellTour	elements	1 or more	The tours of a specific well.

There is no particular order of these elements.

Each instance corresponds to a specific well but 2 instances may correspond to the same well if a situation requires it. For example, when a rig needs to be switched for another after spud has occurred.

Section 4.0 provides details of the WellTour element. |

3.3 ETS/Others Element

The `Others` element is an optional element that allows implementation-specific information to be included in the file.
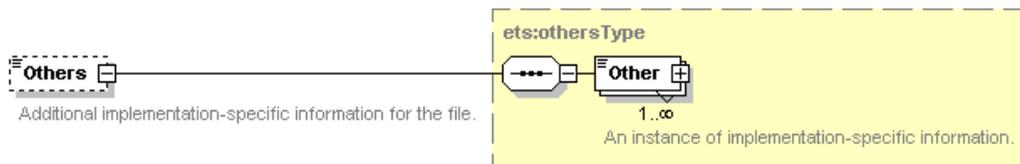
Child Elements

Name	Content	Use	Description / Constraints
Other	elements	1 or more	Additional implementation-specific information for the file. The standard does not enforce any specific ordering to the instances of these elements.

3.3.1 Others/Other Element

The `Other` element is a recurring element within the `Others` element.

The standard does not enforce any specific ordering to the instances of the `Other` element although implementations may have a defined order to their specific elements.

Attributes

Name	Type	Use	Size	Description / Constraints
id	ets:idValue	required	30	Identifier used to reference this instance. The value must conform to the constraints imposed by the type. More than one element may have the same value for this attribute.

Child Elements

Name	Content	Use	Description / Constraints
any names from any namespace	mixed (text and elements)	0 or more	The text and XML elements storing implementation-specific information. The standard does not enforce any specific ordering to the instances of these elements. There are no restrictions imposed on the contents.

4.0 WELLTOUR ELEMENT

The `WellTour` element is a recurring element within the `WellTours` element.

LicenseNo
License number of the well issued by the relevant governing agency (Alberta's EUB for example).

WellName
Well name as assigned by the governing agency. Usually composed of the operator name, strike area and location.

SurfaceLocation ⊞
The surface location of the well as recorded on the well license.

UniqueWellId
Unique identifier (UWI) for the well on which the reported operation was performed. As recorded on well license.

SpudDateTime
The spud date/time for the well. This attribute should not appear if drilling has not been started.

RigReleaseDateTime
The date/time at which the rig was released from the well. This attribute should not appear if rig release has not yet occurred.

JobNo
The contractor's job number.

AfeNo
The operator's AFE number.

WellTour
1..∞
The tours of each specific well.

WellType
The well type.

IsReentry
Has the value of true if the well is a reentry, otherwise false.

KBHeight ⊞
Height above ground level of the Kelly Bushing.

Rig ⊞
Drilling rig details.

Contractor ⊞
Drilling contractor.

Operator ⊞
Well operator required if the rig is contracted and actively working.

DayTours ⊞
The tours for one or more days of the well.

Changes ⊞
Log of changes made to the data.

Others ⊞
Additional implementation-specific information for the well.

Each instance of the `WellTour` element contains all the details of the tours for a specific well.

There is no particular order to the instances of this element.

Each instance corresponds to a specific well but 2 instances may correspond to the same well if a situation requires it. For example, when a rig needs to be switched for another after spud has occurred.

Child Elements

Name	Content	Use	Size	Description / Constraints
LicenseNo	ets:idValue	optional	10	License number of the well issued by the relevant governing agency (Alberta's EUB for example).
WellName	ets:nameValue	optional	60	Well name as assigned by the governing agency. Usually composed of the operator name, strike area and location.
SurfaceLocation	ets:nameValue	optional	36	The surface location of the well as recorded on the well license. This is a location in one of the formats documented in Appendix B.
UniqueWellId	ets:idValue	optional	30	Unique identifier (UWI) for the well on which the reported operation was performed. As recorded on well license.
SpudDateTime	xsd:dateTime	optional		The spud date/time for the well. This attribute should not appear if drilling has not been started.
RigReleaseDateTime	xsd:dateTime	optional		The date/time at which the rig was released from the well. This attribute should not appear if rig release has not yet occurred.
JobNo	ets:idValue	optional	36	The contractor's job number.
AfeNo	ets:idValue	optional	36	The operator's AFE number.
WellType	pick list: Well Type	optional		The well type.
IsReentry	xsd:boolean	optional		Has the value of true if the well is a reentry, otherwise false.
KBHeight	xsd:decimal	optional	4.2	Height above ground level of the Kelly Bushing.
Rig	elements	required		Drilling rig details.
Contractor	elements	required		Drilling contractor.
Operator	elements	optional		Well operator required if the rig is contracted and actively working.
DayTours	elements	required		The tours for one or more days of the well.
Changes	elements	optional		Log of changes made to the data.
Others	elements	optional		Additional implementation-specific information for the well.

4.1 WellTour/SurfaceLocation Element

The `SurfaceLocation` element stores the surface location of the well as recorded on the well license. This is a location in one of the formats documented in Appendix B.
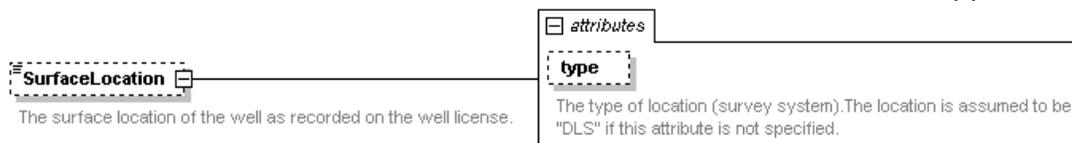
Attributes

Name	Type	Use	Size	Description / Constraints
type	pick list: Location Type	optional		The type of the location (survey system). The location is assumed to be "DLS" if this attribute is not specified.

4.2 WellTour/KBHeight Element

The `KBHeight` element records the height above ground level of the Kelly Bushing.
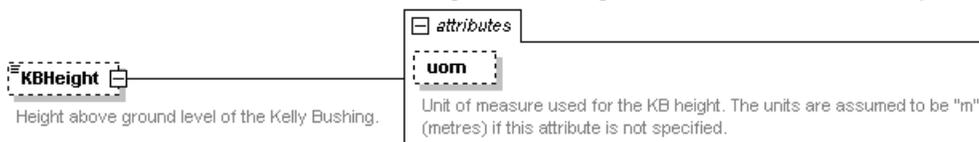
Attributes

Name	Type	Use	Size	Description / Constraints
uom	pick list: Elevation Units	optional		Unit of measure used for the KB height. The units are assumed to be "m" (metres) if this attribute is not specified.

4.3 WellTour/Rig Element

The `Rig` element records the details of the drilling rig working on the well.
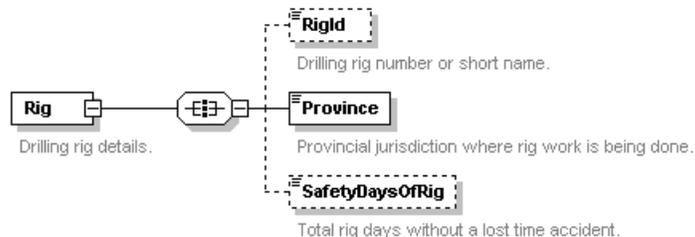
Child Elements

Name	Content	Use	Size	Description / Constraints
RigId	ets:idValue	optional	10	Drilling rig number or short name.
Province	pick list: Jurisdiction	required		Provincial jurisdiction where rig work is being done.
SafetyDaysOfRig	xsd:nonNegativeInteger	optional	4.0	Total rig days without a lost time accident.

4.4 WellTour/Contractor Element

The `Contractor` element records details of the drilling contractor working on the well.
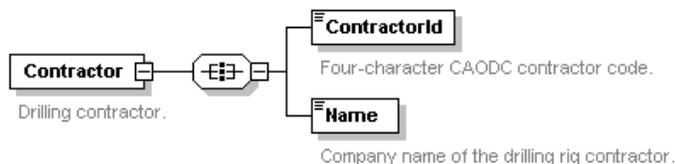
Child Elements

Name	Content	Use	Size	Description / Constraints
ContractorId	xsd:string	required		Four-character CAODC contractor code. The value must be 4 uppercase alphanumeric characters.
Name	ets:nameValue	required	50	Company name of the drilling rig contractor.

4.5 WellTour/Operator Element

The `Operator` element records details of the well operator.

Child Elements

Name	Content	Use	Size	Description / Constraints
Name	ets:nameValue	required	50	Exploration company name.

4.6 WellTour/DayTours Element

The `DayTours` element is a required element that contains the details of all the tours recorded for a well.

Child Elements

Name	Content	Use	Description / Constraints
DayTour	elements	1 or more	The tours for a specific day of the well. There is no enforced order of these elements but they would typically be in date order. Each instance of the `DayTour` element corresponds to a specific day and, as such, each instance within a common `WellTour` parent element must have a unique value for `Date`. Section 5.0 provides details of the `WellTour` element.

4.7 WellTour/Changes Element

The `Changes` element records a history log of the changes made to the data recorded for a set of well tours.

Child Elements

Name	Content	Use	Description / Constraints
Change	elements	1 or more	Details of a data item value that was set, changed or deleted. There is no enforced order of these elements but they would typically be in order of the changes. Each instance of the Change element corresponds to a specific change of the data.

4.7.1 Changes/Change Element

The `Change` element is a recurring element that records the details of a changes to the data recorded for a set of well tours.
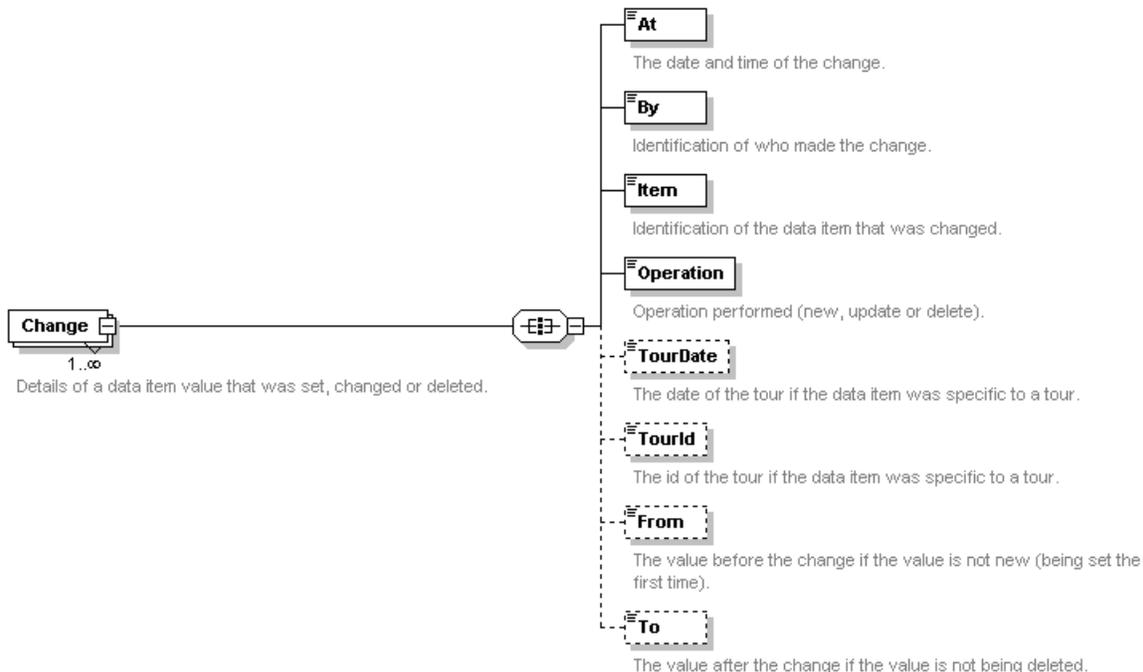
Each instance of the `Change` element contains all the details of a data item value that was set, changed or deleted. There is no enforced order of these elements but they would typically be in order of the changes.

Child Elements

Name	Content	Use	Size	Description / Constraints
At	xsd:dateTime	required		The date and time of the change.
By	ets:nameValue	required	36	Identification of who made the change.
Item	xsd:idValue	required	200	Identification of the item value that was changed within this `WellTour` instance.
				This is recorded as an XPath expression that uniquely selects the element or attribute which value was affected. For example: `DayTour[2]/Weather/Temperature` identifies the temperature value within the second instance of the `DayTour` element. An attribute is indicated in a similar manner. For example: `DayTour[1]//Tour[3]//MudMaterial[2]/UnitQuantity/@uom` identifies a uom attribute within the second mud material within the third Tour.
Operation	"NEW", "UPDATE" or "DELETE"	required		Operation performed (new, update or delete).
TourDate	xsd:date	optional		The date of the tour if the data item was specific to a tour.
TourId	xsd:positiveInteger	optional	1.0	The id of the tour if the data item was specific to a tour.
From	ets:textValue	optional	1000	The value before the change if the value is not new (being set the first time).
To	ets:textValue	optional	1000	The value after the change if the value is not being deleted.

4.8 WellTour/Others Element

The `Others` element is an optional element that allows implementation-specific information for a well to be included in the file.
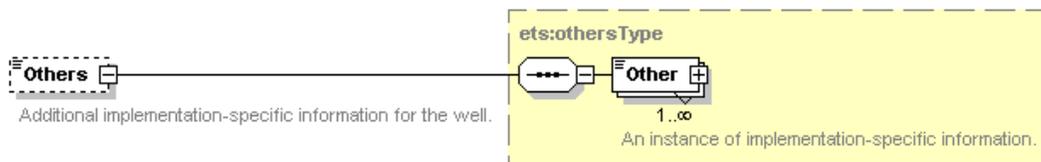
Child Elements

Name	Content	Use	Description / Constraints
Other	elements	1 or more	Additional implementation-specific information for the well.
			The standard does not enforce any specific ordering to the instances of these elements.

4.8.1 Others/Other Element

The `Other` element is a recurring element within the `Others` element.

The standard does not enforce any specific ordering to the instances of the `Other` element although implementations may have a defined order to their specific elements.

Attributes

Name	Type	Use	Size	Description / Constraints
id	ets:idValue	required	30	Identifier used to reference this instance.
				The value must conform to the constraints imposed by the type.
				More than one element may have the same value for this attribute.

Child Elements

Name	Content	Use	Description / Constraints
any names from any namespace	mixed (text and elements)	0 or more	The text and XML elements storing implementation-specific information.
			The standard does not enforce any specific ordering to the instances of these elements.
			There are no restrictions imposed on the contents.

5.0 DAYTOUR ELEMENT

The `DayTour` element is a recurring element within the `DayTours` element.
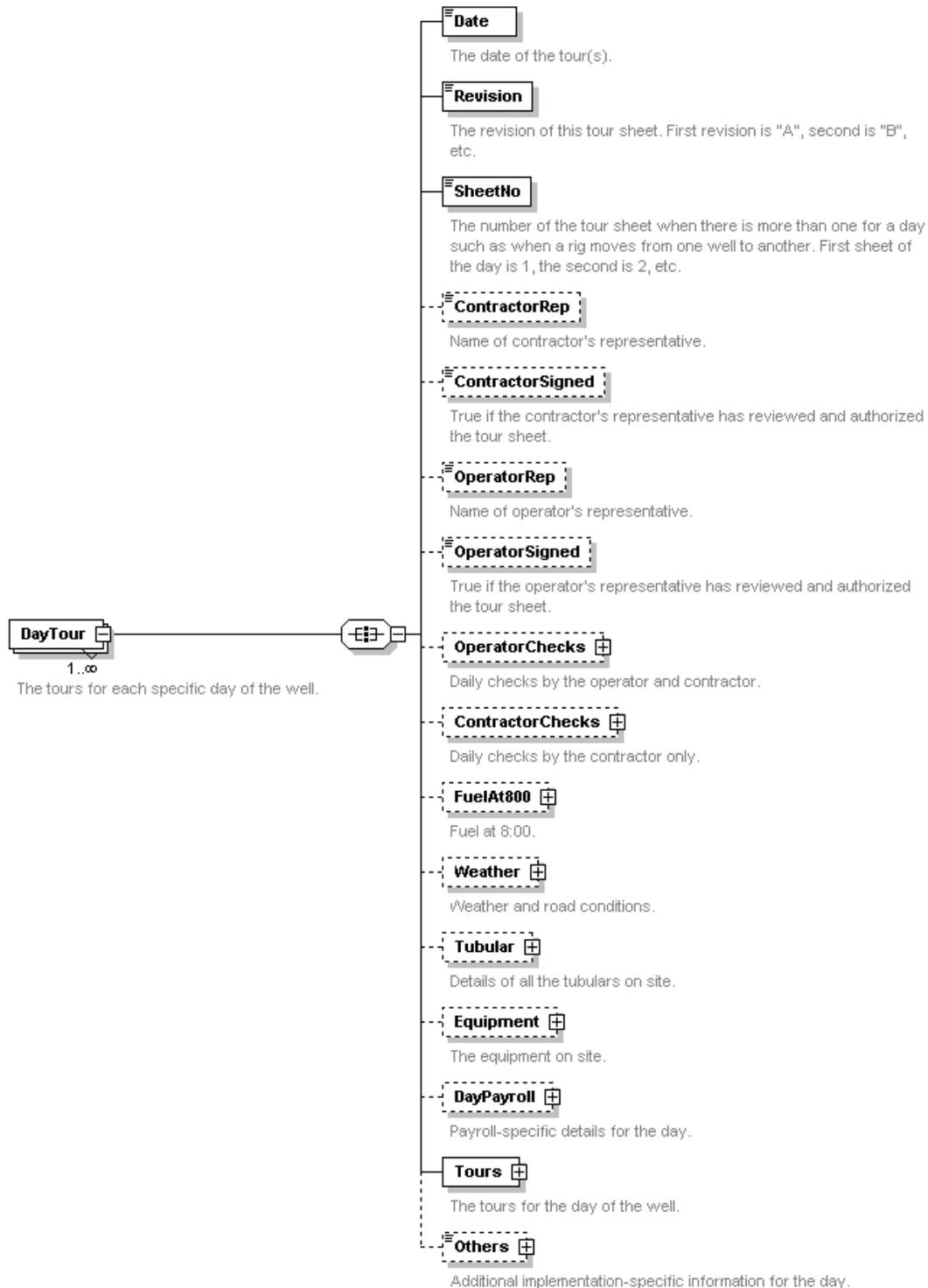
Each instance of the `DayTour` element contains all the details of the tours for a day of the well.

There is no enforced order of these elements but they would typically be in date order.

Each instance of the `DayTour` element corresponds to a specific day and, as such, each instance within a common `WellTour` parent element must have a unique value for `Date`.

Child Elements

Name	Content	Use	Size	Description / Constraints
Date	xsd:date	required		The date of the tour(s).
				To handle situations when time changes from/to Daylight Savings Time, the date in this field includes the time zone value for the start of the day (time 00:00:00).
Revision	xsd:string	required	2	The revision of this tour sheet (set of tours). First revision is "A", second is "B", up to "Z" and then "AA", "AB" up to a maximum revision of "ZZ".
				The value is restricted to be one or two upper-case letters.
SheetNo	xsd:positiveInteger	required	1.0	The number of the tour sheet when more than one exist for a day such as when a rig moves from one well to another. First sheet of the day is 1, the second is 2, etc.
ContractorRep	ets:nameValue	optional	36	Name of contractor's representative.
ContractorSigned	xsd:boolean	optional		True if the contractor's representative has reviewed and authorized the tour sheet.
OperatorRep	ets:nameValue	optional	36	Name of operator's representative.
OperatorSigned	xsd:boolean	optional		True if the operator's representative has reviewed and authorized the tour sheet.
OperatorChecks	elements	optional		Daily checks by the operator and contractor.
ContractorChecks	elements	optional		Daily checks by the contractor only.
FuelAt800	elements	optional		Fuel at 8:00.
Weather	elements	optional		Weather and road conditions.
Tubular	elements	optional		Details of all the tubulars on site.
Equipment	elements	optional		The equipment on site.
DayPayroll	elements	optional		Payroll-specific details for the day.
Tours	elements	required		The tours for the day of the well.
Others	elements	optional		Additional implementation-specific information for the day.

5.1 DayTour/OperatorChecks Element

The OperatorChecks element records the details of the daily checks that are the required or recommended rig inspections conducted by both the operator's and contractor's representatives. These records are for compliance with government regulations and industry practice.

Daily checks by the operator and contractor.   Daily check by operator and contractor.
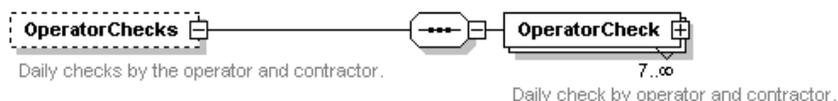
Child Elements

Name	Content	Use	Description / Constraints
OperatorCheck	elements	7 or more	Daily check by operator and contractor. There are seven existing "pre-printed" checks that are always recorded even if initials are not present. The standard does not enforce any specific ordering to the instances of these elements.

5.1.1 OperatorChecks /OperatorCheck Element

The OperatorCheck element is a recurring element within the OperatorChecks element.
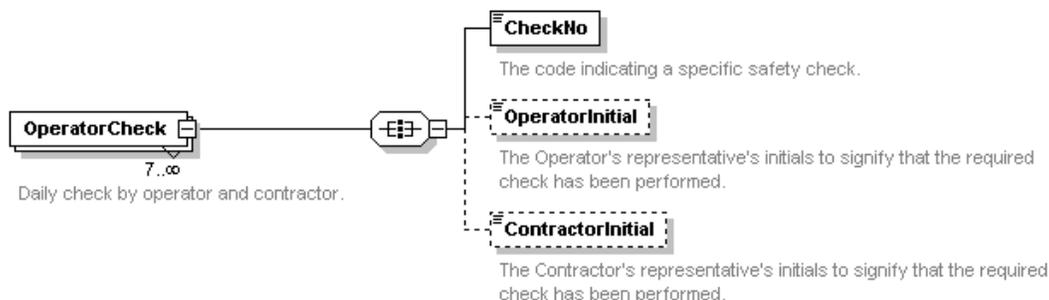
Each instance of the OperatorCheck element contains all the details of a safety check performed by the operator and contractor. The standard does not enforce any specific ordering to the instances of these elements.

Child Elements

Name	Content	Use	Size	Description / Constraints
CheckNo	pick list: Operator Check Code	required		The code indicating a specific safety check.
OperatorInitial	ets:nameValue	optional	3	The Operator's representative's initials to signify that the required check has been performed. The value must conform to the constraints imposed by the type.

| ContractorInitial | ets:nameValue | optional | 3 | The Contractor's representative's initials to signify that the required check has been performed. |
| | | | | The value must conform to the constraints imposed by the type. |

5.2 DayTour/ContractorChecks Element

The ContractorChecks element records the details of the daily checks that are the required or recommended rig inspections conducted by the contractor representatives. These records are for compliance with government regulations and industry practice.
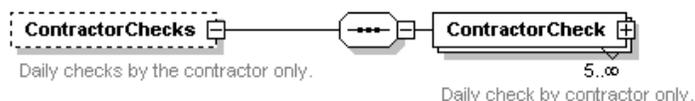
Child Elements

Name	Content	Use	Description / Constraints
ContractorCheck	elements	5 or more	Daily check by contractor only. There are five existing "pre-printed" checks that are always recorded even if initials are not present.
			The standard does not enforce any specific ordering to the instances of these elements.

5.2.1 ContractorChecks /ContractorCheck Element

The ContractorCheck element is a recurring element within the ContractorChecks element.
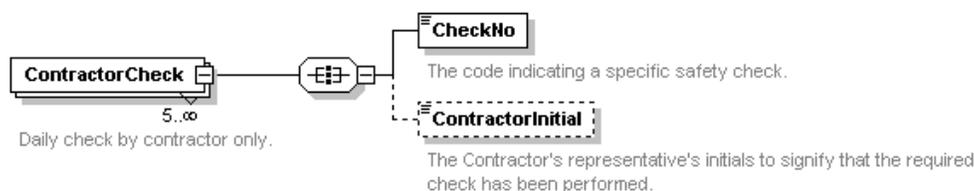
Each instance of the ContractorCheck element contains all the details of a safety check performed only by the contractor. The standard does not enforce any specific ordering to the instances of these elements.

Child Elements

Name	Content	Use	Size	Description / Constraints
CheckNo	pick list: Contractor Check Code	required		The code indicating a specific safety check.
ContractorInitial	ets:nameValue	optional	3	The Contractor's representative's initials to signify that the required check has been performed.
				The value must conform to the constraints imposed by the type.

5.3 DayTour/FuelAt800 Element

The `FuelAt800` element records remaining fuel in the rig tank and boiler tank at 8:00
AM in the morning. If required, other fuel storage on location can be recorded using
comments in the `DayTour/Remarks` element.
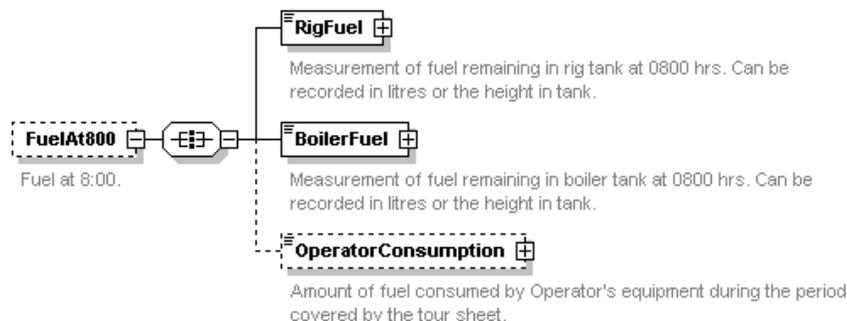
Child Elements

Name	Content	Use	Size	Description / Constraints
RigFuel	xsd:decimal	required	7.2	Measurement of fuel remaining in rig tank at 0800 hrs. Can be recorded in litres or the height in tank.
BoilerFuel	xsd:decimal	required	7.2	Measurement of fuel remaining in boiler tank at 0800 hrs. Can be recorded in litres or the height in tank.
OperatorConsumption	xsd:decimal	optional	7.2	Amount of fuel consumed by operator's equipment during the period covered by the tour sheet.

The `OperatorCheck` element is a recurring element within the `OperatorChecks`
element.

5.3.1 FuelAt800/RigFuel Element

The `RigFuel` element records the fuel remaining in rig tank at 0800 hrs.
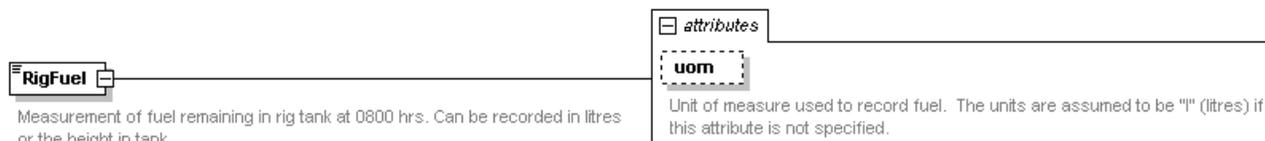
Attributes

Name	Type	Use	Size	Description / Constraints
uom	pick list: Fuel Units	optional		Unit of measure used to record fuel. The units are assumed to be "l" (litres) if this attribute is not specified.

5.3.2 FuelAt800/BoilerFuel Element

The `BoilerFuel` element records the fuel remaining in boiler tank at 0800 hrs.
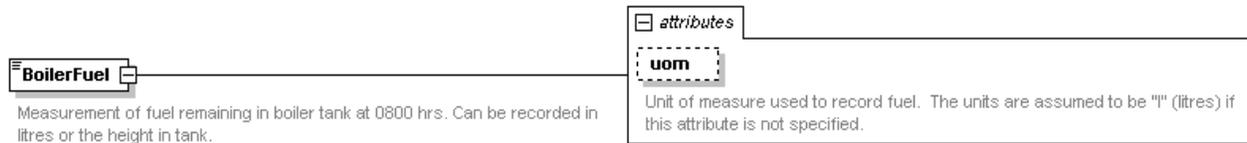
Attributes

Name	Type	Use	Size	Description / Constraints
uom	pick list: Fuel Units	optional		Unit of measure used to record fuel. The units are assumed to be "l" (litres) if this attribute is not specified.

5.3.3 FuelAt800/OperatorConsumption Element

The `OperatorConsumption` element records the fuel consumed by operator's equipment during the period covered by the tour sheet.
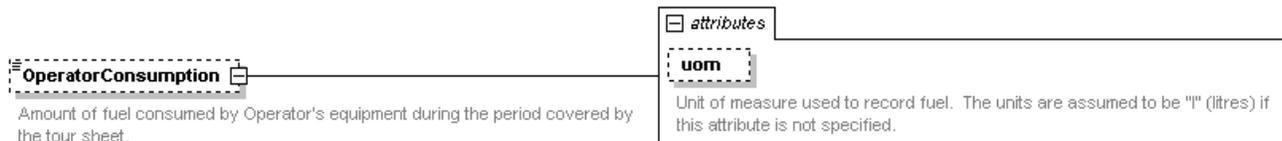
Attributes

Name	Type	Use	Size	Description / Constraints
uom	pick list: Fuel Units	optional		Unit of measure used to record fuel. The units are assumed to be "l" (litres) if this attribute is not specified.

5.4 DayTour/Weather Element

The `Weather` element is an optional element that records the weather and road conditions for the day.
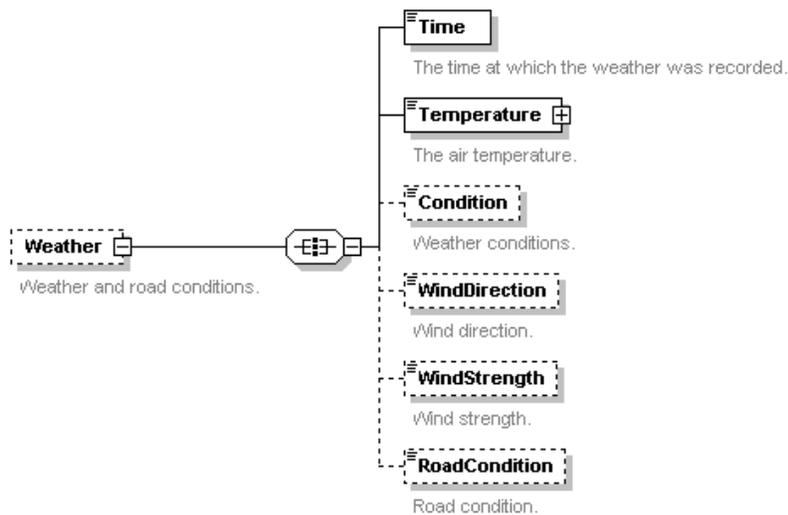
Child Elements

Name	Content	Use	Size	Description / Constraints
Time	ets:timeValue	required		The time at which the weather was recorded.
Temperature	xsd:decimal	required	5.2	The air temperature.
Condition	pick list: Weather Type	optional		Weather conditions.
WindDirection	pick list: Direction Type	optional		Wind direction.
WindStrength	pick list: Wind Strength Type	optional		Wind strength.
RoadCondition	pick list: Road Condition Type	optional		Road condition.

5.4.1 Weather/Temperature Element

The `Temperature` element records the measured air temperature.
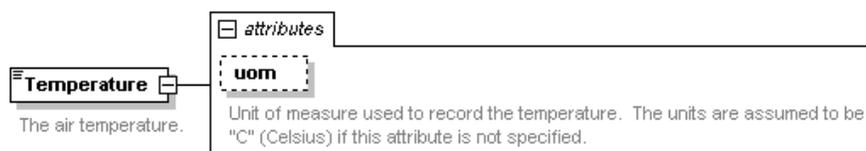
Attributes

Name	Type	Use	Size	Description / Constraints
uom	pick list: Temperature Units	optional		Unit of measure used to record the temperature. The units are assumed to be "C" (Celsius) if this attribute is not specified.

5.5 DayTour/Tubular Element

The `Tubular` element records the details of all the tubular components on site.
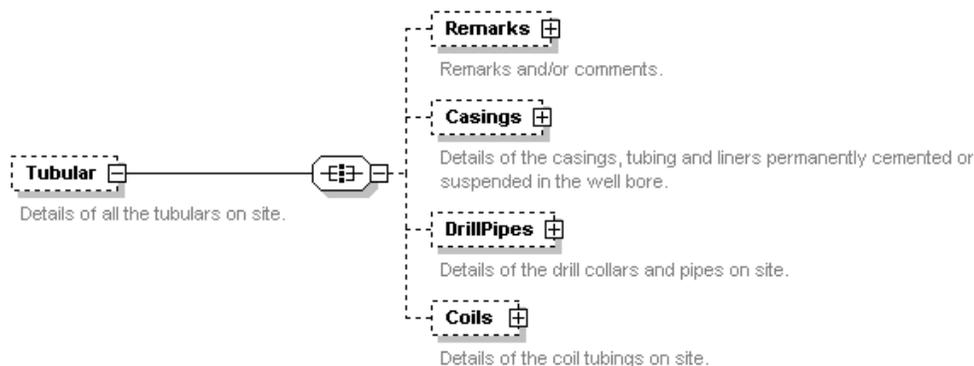
Child Elements

Name	Content	Use	Size	Description / Constraints
Remarks	elements	optional		Remarks and/or comments.
Casings	elements	optional		Details of the casings, tubing and liners permanently cemented or suspended in the well bore.
DrillPipes	elements	optional		Details of the drill collars and pipes on site.
Coils	elements	optional		Details of the coil tubing on site.

5.5.1 Tubular/Remarks Element

The `Remarks` element is an optional element that allows general text to be associated with the tubulars.

Child Elements

Name	Content	Use	Size	Description / Constraints
Remark	ets:textValue	1 or more	1000	The text of a remark or comment. The contents represents the complete text of the comments entered at one particular time White space and new lines are preserved. The order of these elements corresponds to the order in which comments were entered.

5.5.2 Tubular/Casings Element

The `Casings` element records details of the casings, tubing and liners permanently cemented or suspended in the well bore.
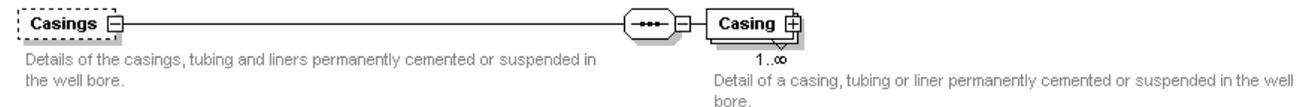
Child Elements

Name	Content	Use	Description / Constraints
Casing	elements	1 or more	Detail of a casing, tubing or liner permanently cemented or suspended in the well bore. The standard does not enforce any specific ordering to the instances of these elements.

5.5.2.1 Casings/Casing

The `Casing` element is a recurring element within the `Casings` element.
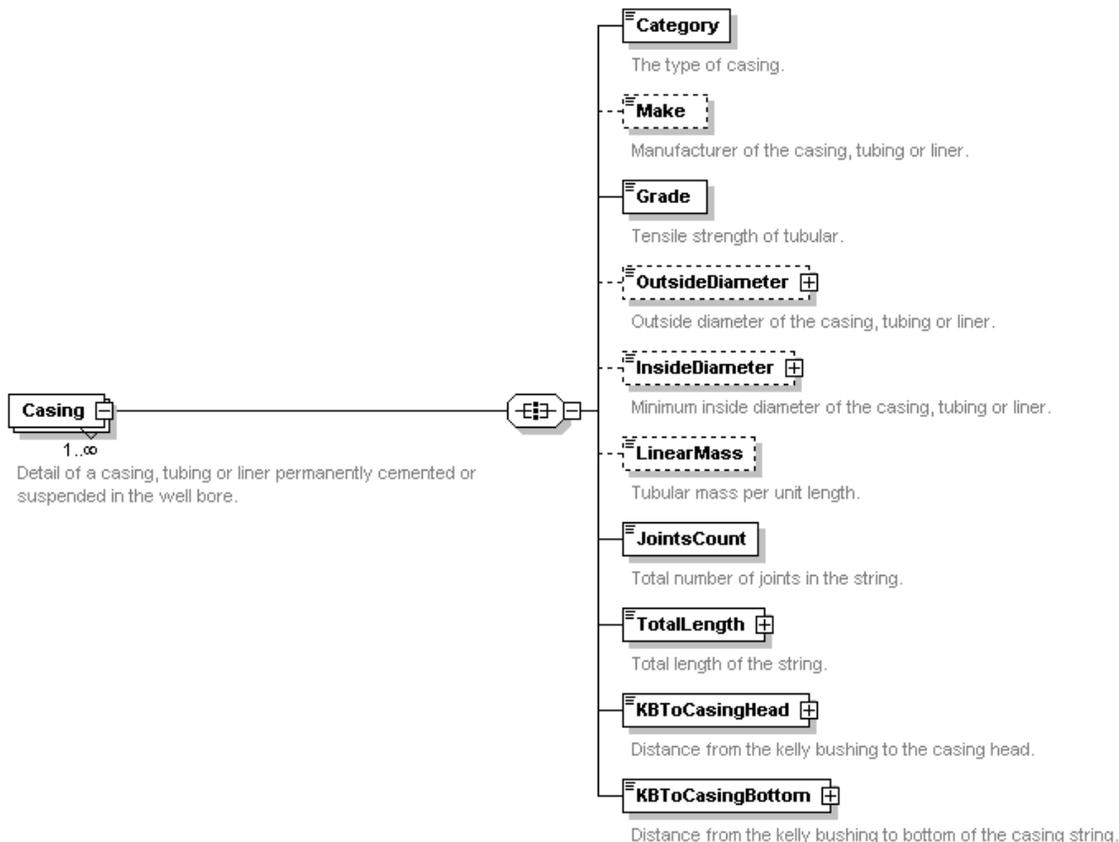
Each instance of the `Casing` element contains all the details of a specific type of casing, tubing or liner in the well bore. The standard does not enforce any specific ordering to the instances of these elements but they would typically be in the order in which they were recorded.

Child Elements

Name	Content	Use	Size	Description / Constraints
Category	pick list: Casing Category	required		The type of casing.
Make	ets:nameValue	optional	16	Manufacturer of the casing, tubing or liner.
Grade	ets:nameValue	required	8	Tensile strength of tubular.
OutsideDiameter	xsd:decimal	optional	8.3	Outside diameter of the casing, tubing or liner.
InsideDiameter	xsd:decimal	optional	8.3	Minimum inside diameter of the casing, tubing or liner.
LinearMass	xsd:decimal	optional	9.4	Tubular mass per unit length.

JointsCount	xsd:nonNegativeInteger	required	4.0	Total number of joints in the string.
TotalLength	xsd:decimal	required	7.2	Total length of the string.
KBToCasingHead	xsd:decimal	required	7.2	Distance from the kelly bushing to the casing head.
KBToCasingBottom	xsd:decimal	required	7.2	Distance from the kelly bushing to bottom of the casing string.

5.5.2.1.1 Casing/OutsideDiameter Element

The `OutsideDiameter` element records the outside diameter of the casing, tubing or liner.
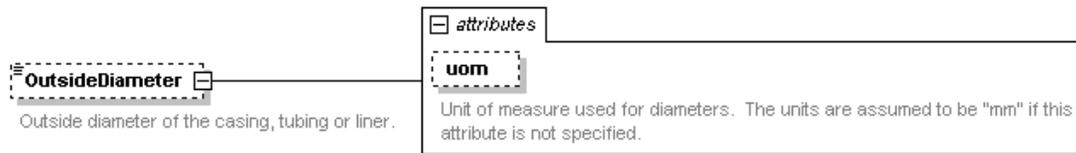
Attributes

Name	Type	Use	Size	Description / Constraints
uom	pick list: Diameter Units	optional		Unit of measure used for diameters. The units are assumed to be "mm" if this attribute is not specified.

5.5.2.1.2 Casing/InsideDiameter Element

The `InsideDiameter` element records the minimum inside diameter of the casing, tubing or liner.
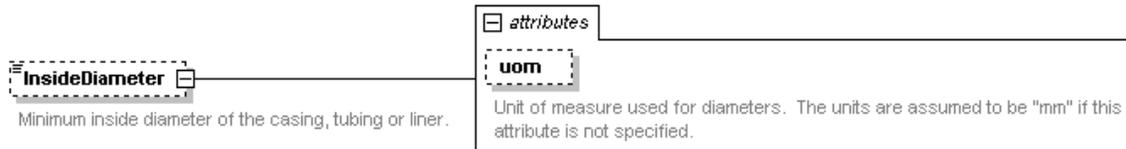
Attributes

Name	Type	Use	Size	Description / Constraints
uom	pick list: Diameter Units	optional		Unit of measure used for diameters. The units are assumed to be "mm" if this attribute is not specified.

5.5.2.1.3 Casing/LinearMass Element

The `LinearMass` element records the mass per unit length of the tubular.
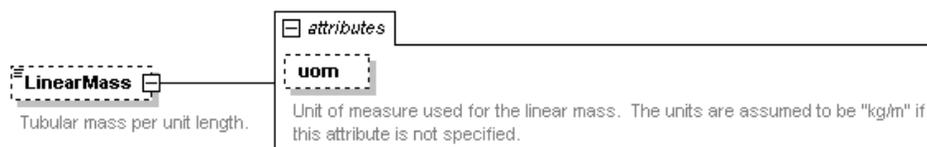
Attributes

Name	Type	Use	Size	Description / Constraints
uom	pick list: Linear Mass Units	optional		Unit of measure used for the linear mass. The units are assumed to be "kg/m" if this attribute is not specified.

5.5.2.1.4 Casing/TotalLength Element

The `TotalLength` element records the total length of the string.
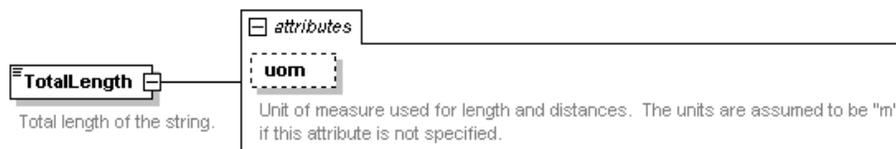
Attributes

Name	Type	Use	Size	Description / Constraints
uom	pick list: Length Units	optional		Unit of measure used for length and distances. The units are assumed to be "m" if this attribute is not specified.

5.5.2.1.5 Casing/KBToCasingHead Element

The `KBToCasingHead` element records the distance from the kelly bushing to casing head.
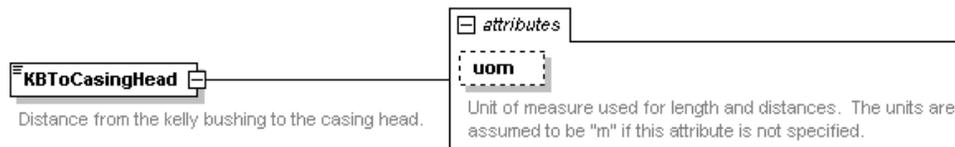
Attributes

Name	Type	Use	Size	Description / Constraints
uom	pick list: Length Units	optional		Unit of measure used for length and distances. The units are assumed to be "m" if this attribute is not specified.

5.5.2.1.6 Casing/KBToCasingBottom Element

The `KBToCasingBottom` element records the distance from the kelly bushing to bottom of the casing string.
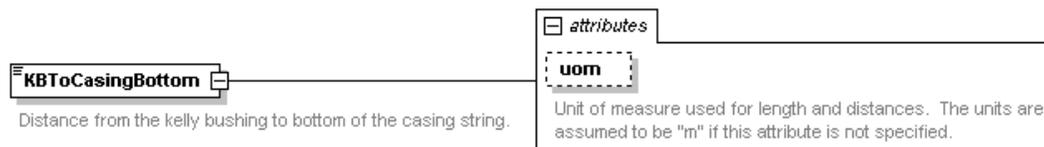
Attributes

Name	Type	Use	Size	Description / Constraints
uom	pick list: Length Units	optional		Unit of measure used for length and distances. The units are assumed to be "m" if this attribute is not specified.

5.5.3 Tubular/DrillPipes Element

The `DrillPipes` element records details of the drill collars and pipes on site.

Details of the drill collars and pipes on site.

DrillPipe 1..∞

Detail of a drill collar or pipe on site.
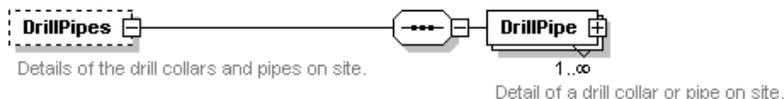
Child Elements

Name	Content	Use	Description / Constraints
DrillPipe	elements	1 or more	Detail of a drill collar or pipe on site.
			The standard does not enforce any specific ordering to the instances of these elements.

5.5.3.1 DrillPipes/DrillPipe Element

The `DrillPipe` element is a recurring element within the `DrillPipes` element.
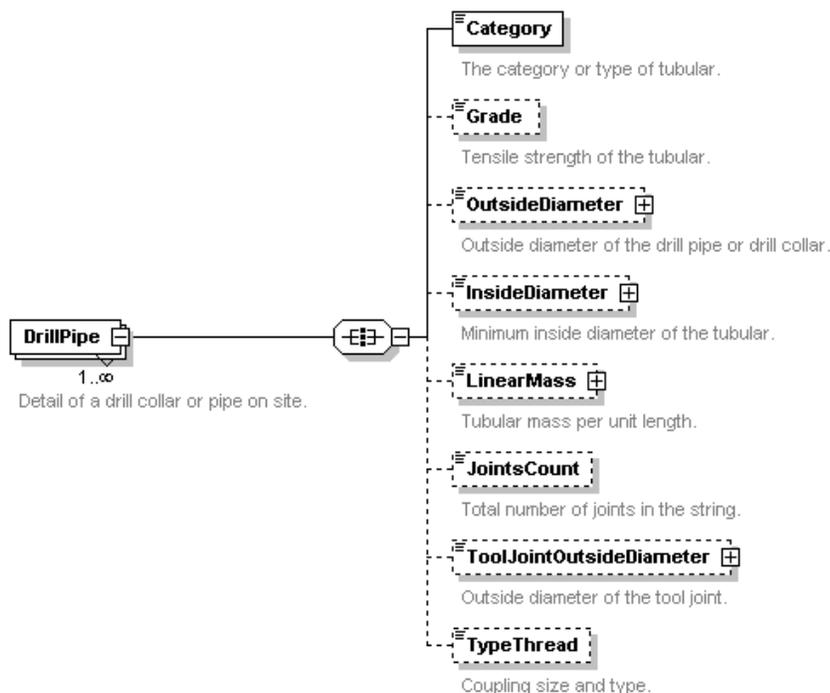
Each instance of the `DrillPipe` element contains all the details of a specific type of drill collar or pipe. The standard does not enforce any specific ordering to the instances of these elements but they would typically be in the order in which they were recorded.

Child Elements

Name	Content	Use	Size	Description / Constraints
Category	pick list: Drill Pipe Category	required		The category or type of tubular.
Grade	ets:nameValue	optional	8	Tensile strength of the tubular.

OutsideDiameter	xsd:decimal	optional	8.3	Outside diameter of the drill pipe or drill collar.
InsideDiameter	xsd:decimal	optional	8.3	Minimum inside diameter of the tubular.
LinearMass	xsd:decimal	optional	9.4	Tubular mass per unit length.
JointsCount	xsd:nonNegativeInteger	optional	4.0	Total number of joints in the string.
ToolJointOutsideDiameter	xsd:decimal	optional	8.3	Outside diameter of the tool joint.
TypeThread	ets:nameValue	optional	10	Coupling size and type.

5.5.3.1.1 DrillPipe/OutsideDiameter Element

The `OutsideDiameter` element records the outside diameter of a drill pipe or drill collar.

Attributes

Name	Type	Use	Size	Description / Constraints
uom	pick list: Diameter Units	optional		Unit of measure used for the outside diameter. The units are assumed to be "mm" if this attribute is not specified.

5.5.3.1.2 DrillPipe/InsideDiameter Element

The `InsideDiameter` element records the minimum inside diameter of a drill pipe or drill collar.
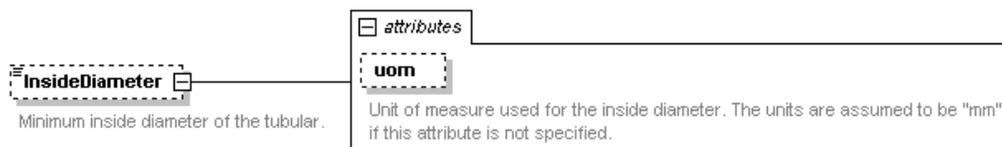
Attributes

Name	Type	Use	Size	Description / Constraints
uom	pick list: Diameter Units	optional		Unit of measure used for the inside diameter. The units are assumed to be "mm" if this attribute is not specified.

5.5.3.1.3 DrillPipe/LinearMass Element

The `LinearMass` element records tubular mass per unit length.
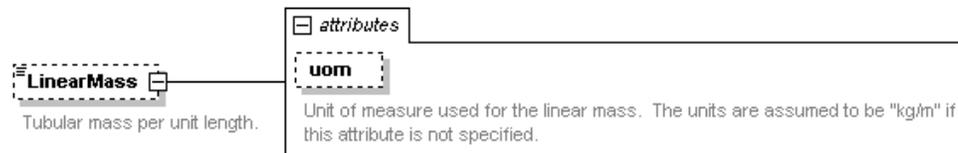
Tubular mass per unit length.

Unit of measure used for the linear mass. The units are assumed to be "kg/m" if this attribute is not specified.

Attributes

Name	Type	Use	Size	Description / Constraints
uom	pick list: Linear Mass Units	optional		Unit of measure used for the linear mass. The units are assumed to be "kg/m" if this attribute is not specified.

5.5.3.1.4 DrillPipe/ToolJointOutsideDiameter Element

The `ToolJointOutsideDiameter` element records outside diameter of a tool joint.
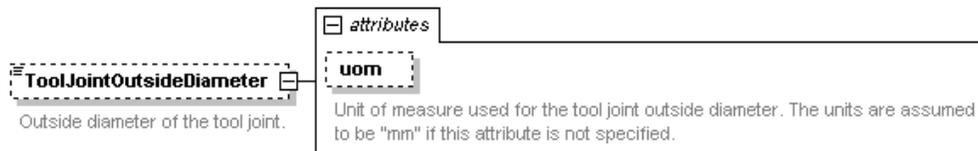
Outside diameter of the tool joint.

Unit of measure used for the tool joint outside diameter. The units are assumed to be "mm" if this attribute is not specified.

Attributes

Name	Type	Use	Size	Description / Constraints
uom	pick list: Diameter Units	optional		Unit of measure used for the tool joint outside diameter. The units are assumed to be "mm" if this attribute is not specified.

5.5.4 Tubular/Coils Element

The `Coils` element records details of the coil tubing on site.

Details of the coil tubings on site.   Detail of a coil tubing on site.
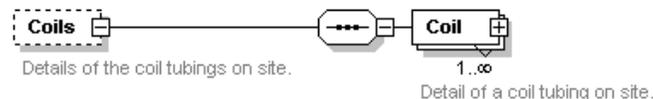
Child Elements

Name	Content	Use	Description / Constraints
Coil	elements	1 or more	Detail of a coil tubing on site. The standard does not enforce any specific ordering to the instances of these elements.

5.5.4.1 Coils/Coil Element

The `Coil` element is a recurring element within the `Coils` element.
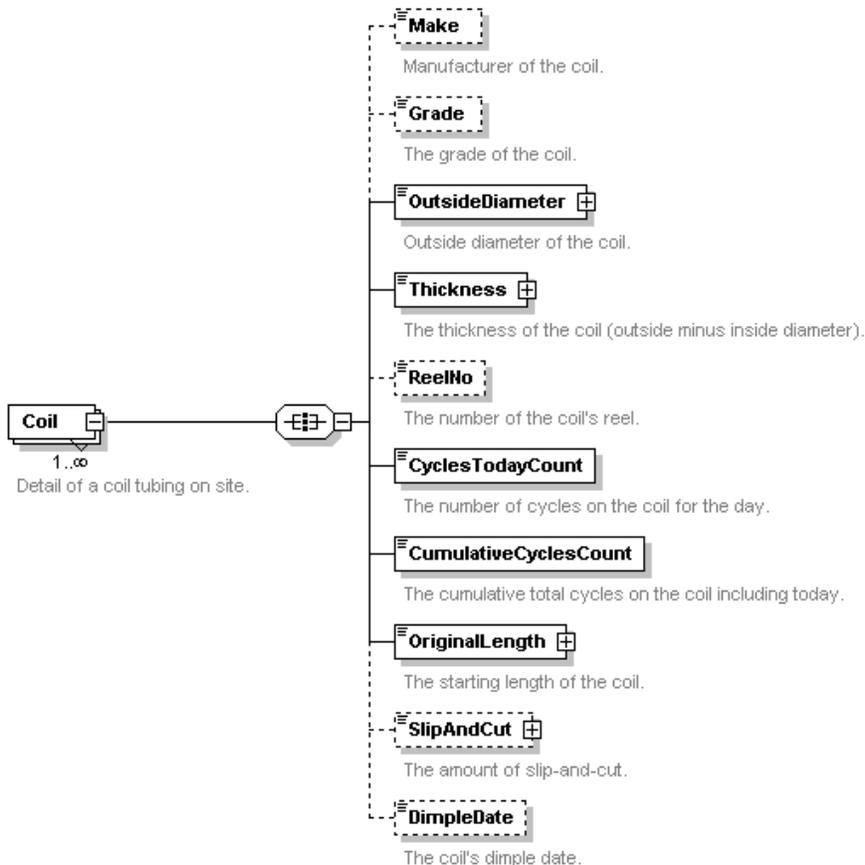
Each instance of the `Coil` element contains all the details of a specific coil on site. The standard does not enforce any specific ordering to the instances of these elements but they would typically be in the order in which they were recorded.

Child Elements

Name	Content	Use	Size	Description / Constraints
Make	ets:nameValue	optional	16	Manufacturer of the coil.
Grade	ets:nameValue	optional	8	The grade of the coil.
OutsideDiameter	xsd:decimal	required	8.3	Outside diameter of coil.
Thickness	xsd:decimal	required	8.3	The thickness of the coil (outside minus inside diameter).
ReelNo	ets:nameValue	optional	10	The number of the coil's reel.
CyclesTodayCount	xsd:nonNegativeInteger	required	4.0	The number of cycles on the coil for the day.
CumulativeCyclesCount	xsd:nonNegativeInteger	required	4.0	The cumulative total cycles on the coil including today.
OriginalLength	xsd:decimal	required	7.2	The starting length of the coil.
SlipAndCut	xsd:decimal	optional	7.2	The amount of slip and cut.
DimpleDate	xsd:date	optional		The coil's dimple date.

5.5.4.1.1 Coil/OutsideDiameter Element

The `OutsideDiameter` element records the thickness of a coil (outside minus inside diameter).
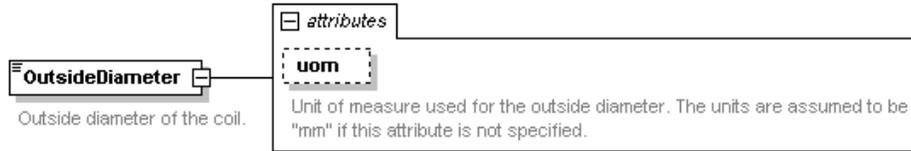
Attributes

Name	Type	Use	Size	Description / Constraints
uom	pick list: Diameter Units	optional		Unit of measure used for the outside diameter. The units are assumed to be "mm" if this attribute is not specified.

5.5.4.1.2 Coil/Thickness Element

The `Thickness` element records the outside diameter of a coil.
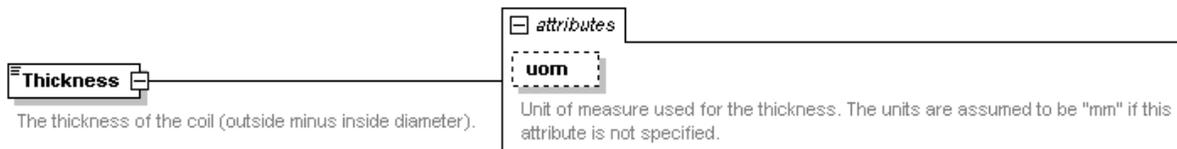
Attributes

Name	Type	Use	Size	Description / Constraints
uom	pick list: Diameter Units	optional		Unit of measure used for the thickness. The units are assumed to be "mm" if this attribute is not specified.

5.5.4.1.3 Coil/OriginalLength Element

The `OriginalLength` element records the starting length of a coil.
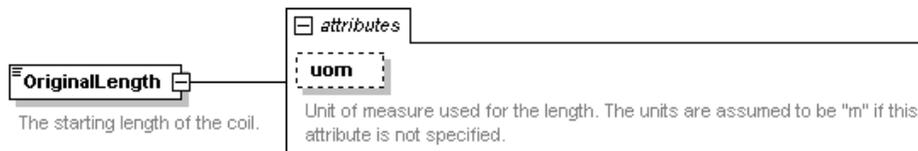
Attributes

Name	Type	Use	Size	Description / Constraints
uom	pick list: Length Units	optional		Unit of measure used for the length. The units are assumed to be "m" if this attribute is not specified.

5.5.4.1.4 Coil/SlipAndCut Element

The `SlipAndCut` element records the amount of slip-and-cut for a coil.
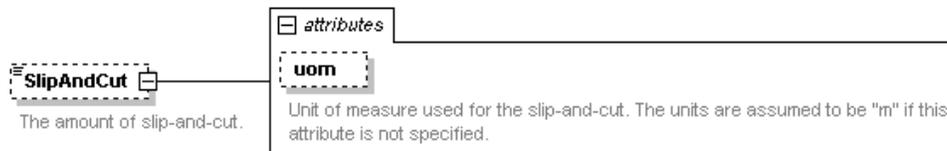
Attributes

Name	Type	Use	Size	Description / Constraints
uom	pick list: Length Units	optional		Unit of measure used for the slip-and-cut. The units are assumed to be "m" if this attribute is not specified.

5.6 DayTour/Equipment Element

The `Equipment` element records the details of equipment on site.
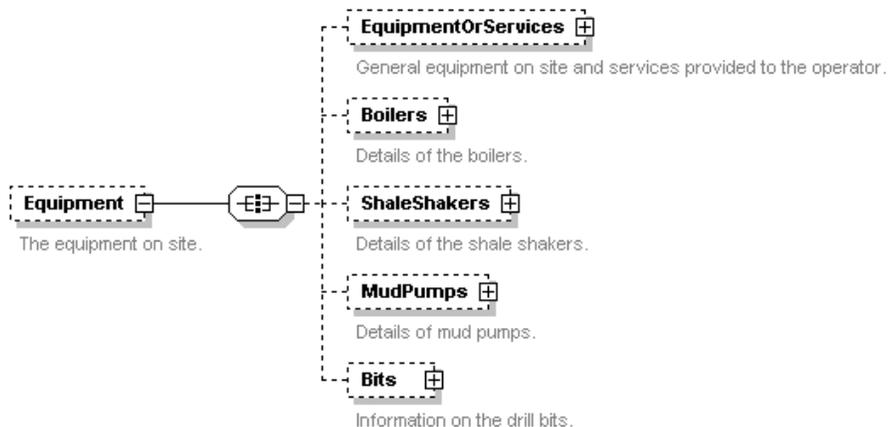
Child Elements

Name	Content	Use	Size	Description / Constraints
EquipmentOrServices	elements	optional		General equipment on site and services provided to the operator.
Boilers	elements	optional		Details of the boilers.
ShaleShakers	elements	optional		Details of the shale shakers.
MudPumps	elements	optional		Details of mud pumps.
Bits	elements	optional		Information on the drill bits.

5.6.1 Equipment/EquipmentOrServices Element

The `EquipmentOrServices` element records details of general equipment on site and services provided to the operator.
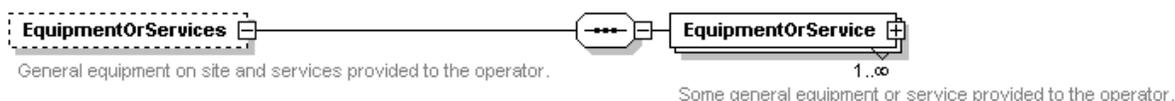
Child Elements

Name	Content	Use	Description / Constraints
EquipmentOrService	elements	1 or more	Detail of some general equipment or service provided to the operator. The standard does not enforce any specific ordering to the instances of these elements.

5.6.1.1 EquipmentOrServices/EquipmentOrService Element

The EquipmentOrService element is a recurring element within the EquipmentOrServices element.
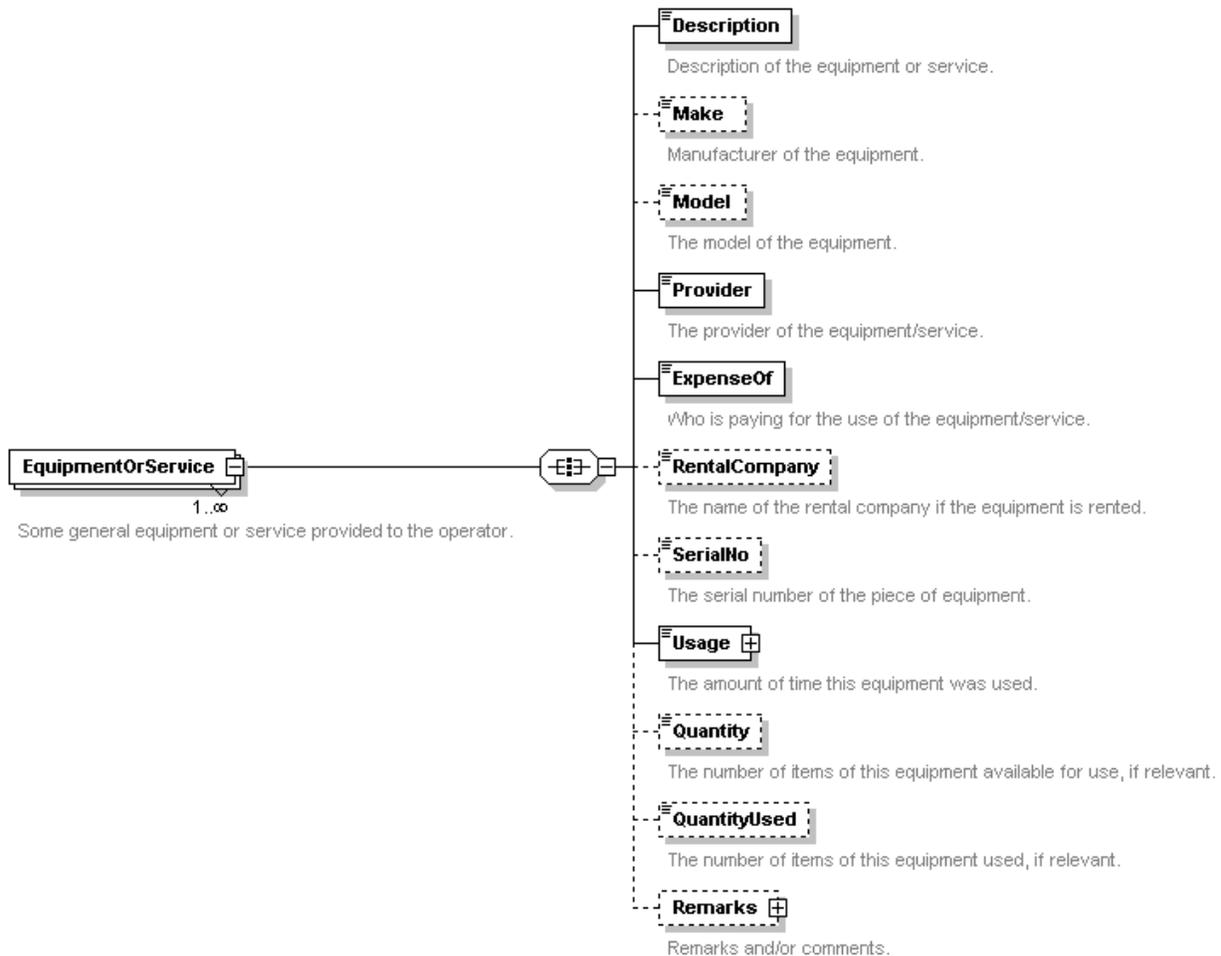
Each instance of the EquipmentOrService element contains all the details of some general equipment or service provided to the operator. The standard does not enforce any specific ordering to the instances of these elements but they would typically be in the order in which they were recorded.

Child Elements

Name	Content	Use	Size	Description / Constraints
Description	ets:textValue	required	30	Description of the equipment or service.

Make	ets:nameValue	optional	24	Manufacturer of the equipment.
Model	ets:nameValue	optional	24	The model of the equipment.
Provider	pick list: Equipment Provider Type	required		The provider of the equipment/service.
ExpenseOf	pick list: Equipment Expense Of Type	required		Who is paying for the use of the equipment/service.
RentalCompany	ets:nameValue	optional	30	The name of the rental company if the equipment is rented.
SerialNo	ets:nameValue	optional	20	The serial number of the piece of equipment.
Usage	xsd:decimal	required	5.2	The amount of time this equipment was used.
Quantity	xsd:positiveInteger	optional	4.0	The number of items of this equipment available for use, if relevant.
QuantityUsed	xsd:nonNegativeInteger	optional	4.0	The number of items of this equipment used, if relevant.
Remarks	elements	optional		Remarks and/or comments.

5.6.1.1.1 EquipmentOrService/Usage Element

The Usage element records the amount of time equipment was used.
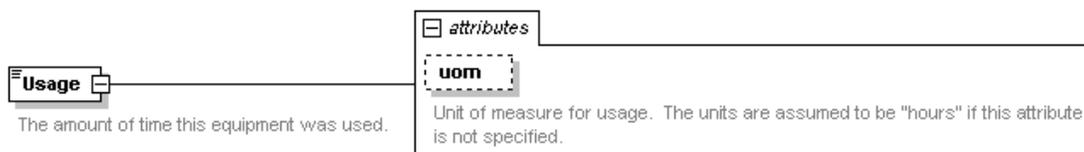
Attributes

Name	Type	Use	Size	Description / Constraints
uom	pick list: Usage Units	optional		Unit of measure for usage. The units are assumed to be "hours" if this attribute is not specified.

5.6.1.1.2 EquipmentOrService/Remarks Element

The Remarks element is an optional element that allows general text to be associated with equipment.

Child Elements

Name	Content	Use	Size	Description / Constraints
Remark	ets:textValue	1 or more	1000	The text of a remark or comment. The contents represents the complete text of the comments entered at one particular time White space and new lines are preserved. The order of these elements corresponds to the order in which comments were entered.

5.6.2 Equipment/Boilers Element

The `Boilers` element is an optional element that contains details of the boilers used during a day.
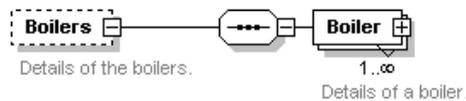
Child Elements

Name	Content	Use	Description / Constraints
Boiler	elements	1 or more	Details of a boiler. The standard does not enforce any specific ordering to the instances of these elements.

5.6.2.1 Boilers/Boiler Element

The `Boiler` element is a recurring element within the `Boilers` element.
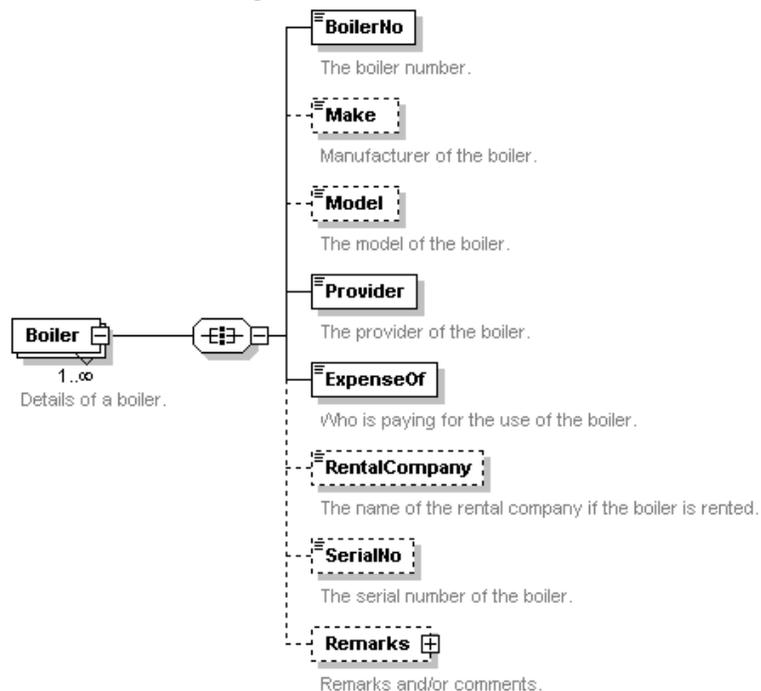
Each instance of the `Boiler` element contains all the details of a specific boiler. The standard does not enforce any specific ordering to the instances of these elements but they would typically be in the order in which they were recorded.

Child Elements

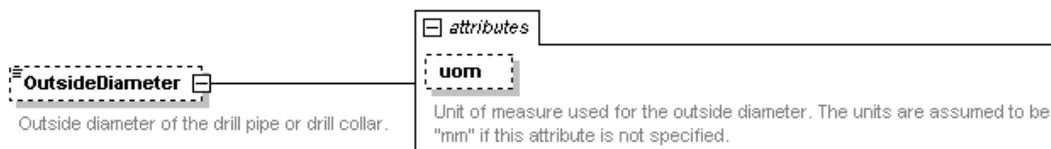| Name	Content	Use	Size	Description / Constraints
BoilerNo	ets:nameValue	required	10	The boiler number used to uniquely identify this boiler.
Make	ets:nameValue	optional	24	Manufacturer of the boiler.
Model	ets:nameValue	optional	24	The model of the boiler.
Provider	pick list: Equipment Provider Type	required		The provider of the boiler.
ExpenseOf	pick list: Equipment Expense Of Type	required		Who is paying for the use of the boiler.
RentalCompany	ets:nameValue	optional	30	The name of the rental company if the boiler is rented.
SerialNo	ets:nameValue	optional	20	The serial number of the boiler.
Remarks	elements	optional		Remarks and/or comments.

5.6.2.1.1 Boiler/Remarks Element

The `Remarks` element is an optional element that allows general text to be associated with a boiler.

Child Elements

Name	Content	Use	Size	Description / Constraints
Remark	ets:textValue	1 or more	1000	The text of a remark or comment. The contents represents the complete text of the comments entered at one particular time White space and new lines are preserved. The order of these elements corresponds to the order in which comments were entered.

5.6.3 Equipment/ShaleShakers Element

The `ShaleShakers` element is an optional element that records details of the shale shakers.
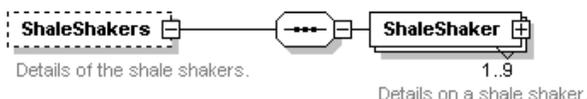
Child Elements

Name	Content	Use	Description / Constraints
ShaleShaker	elements	1 to 9	Details of a shale shaker. The standard does not enforce any specific ordering to the instances of these elements.

5.6.3.1 ShaleShakers/ShaleShaker Element

The `ShaleShaker` element is a recurring element within the `ShaleShakers` element.
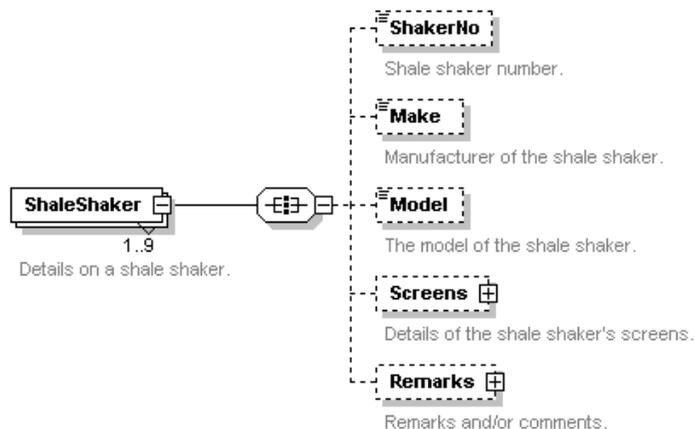
Each instance of the `ShaleShaker` element contains all the details of a shale shaker. The standard does not enforce any specific ordering to the instances of these elements but they would typically be in the order in which they were recorded.

Child Elements

Name	Content	Use	Size	Description / Constraints
ShakerNo	xsd:positiveInteger	optional	1.0	The shale shaker number.
Make	ets:nameValue	optional	24	Manufacturer of the shale shaker.
Model	ets:nameValue	optional	24	The model of the shale shaker.
Screens	elements	optional		Details of the shale shaker's screens.
Remarks	elements	optional		Remarks and/or comments.

5.6.3.1.1 ShaleShaker/Screens Element

The `Screens` element records the details of a shale shaker's screens.
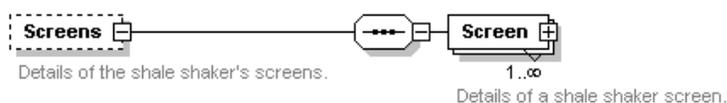
Child Elements

Name	Content	Use	Description / Constraints
Screen	elements	1 or more	Details of a shale shaker screen.

			The standard does not enforce any specific ordering to the instances of these elements.

5.6.3.1.1.1 Screens/Screen Element

The `Screen` element is a recurring element within the `Screens` element.
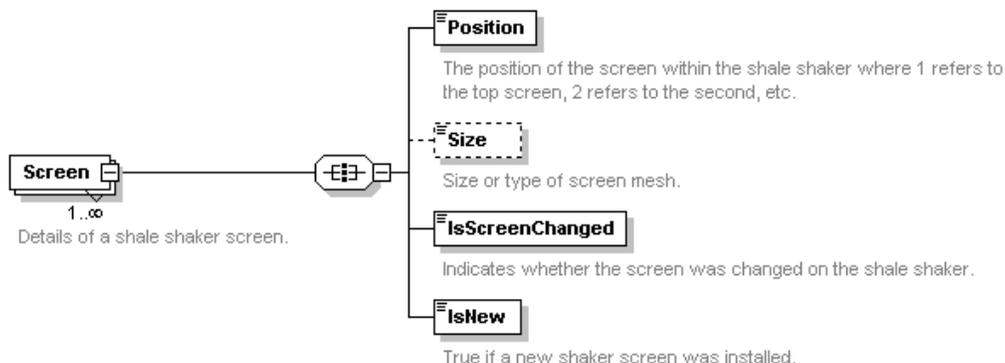
Each instance of the `Screen` element contains all the details of a shale shaker screen. The standard does not enforce any specific ordering to the instances of these elements but they should be in the order of top screen first, then the middle screen and then the bottom screen.

Child Elements

Name	Content	Use	Size	Description / Constraints
Position	xsd:positiveInteger	required		The position of the screen within the shale shaker where 1 refers to the top screen, 2 refers to the second, etc.
Size	ets:nameValue	optional	10	Size or type or screen mesh.
IsScreenChanged	xsd:boolean	required		Indicates whether the screen was changed on the shale shaker.
IsNew	xsd:boolean	required		True if a new shaker screen was installed.

5.6.3.1.2 ShaleShaker/Remarks Element

The `Remarks` element is an optional element that allows general text associated with a shale shaker.

Child Elements

Name	Content	Use	Size	Description / Constraints
Remark	ets:textValue	1 or more	1000	The text of a remark or comment. The contents represents the complete text of the comments entered at one particular time

| | | | | White space and new lines are preserved. |
| | | | | The order of these elements corresponds to the order in which comments were entered. |

5.6.4 Equipment/MudPumps Element

The `MudPumps` element is an optional element that records details of the mud pumps.

Details of mud pumps.   Details of a mud pump.   1..∞
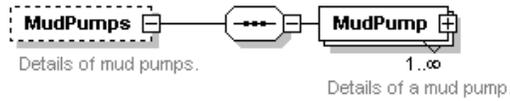
Child Elements

Name	Content	Use	Description / Constraints
MudPump	elements	1 or more	Detail of a mud pump.
			The standard does not enforce any specific ordering to the instances of these elements.

5.6.4.1 MudPumps/MudPump Element

The `MudPump` element is a recurring element within the `MudPumps` element.
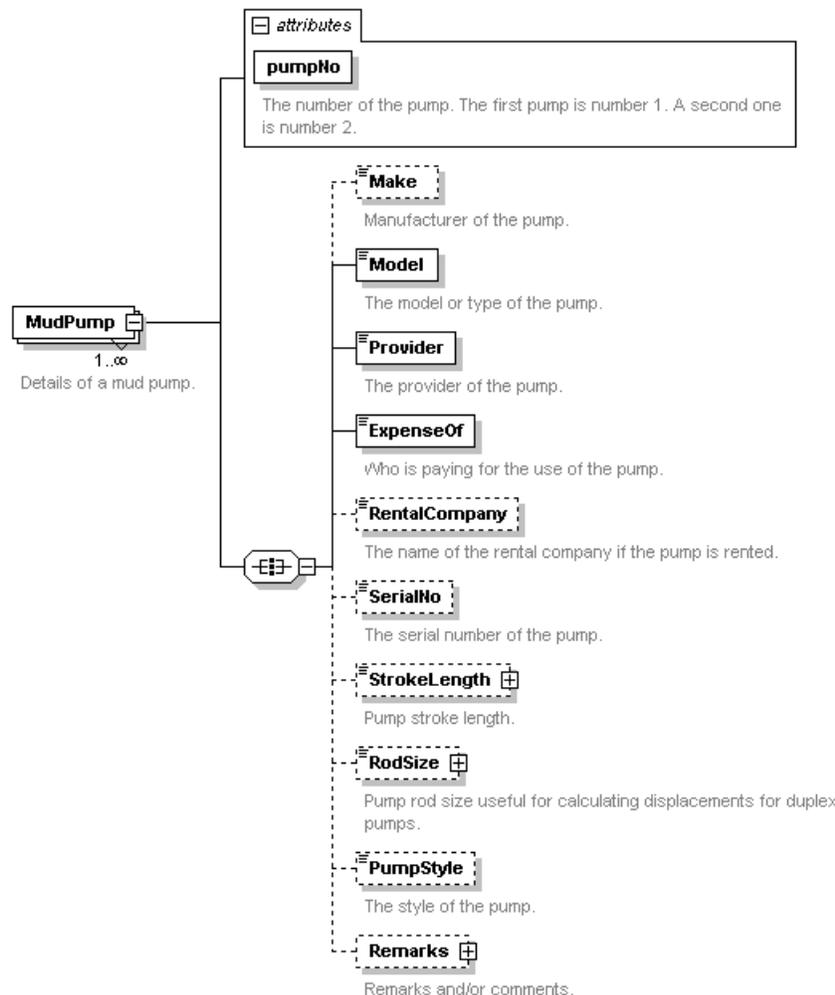
Each instance of the `MudPump` element contains all the details of a specific mud pump. The standard does not enforce any specific ordering to the instances of these elements but they would typically be in the order in which they were recorded.

Attributes

Name	Type	Use	Size	Description / Constraints
pumpNo	xsd:positiveInteger	required	3.0	The number of the pump. The first pump is number 1. A second one is number 2.

Child Elements

Name	Content	Use	Size	Description / Constraints
Make	ets:nameValue	optional	24	Manufacturer of the pump.
Model	ets:nameValue	required	24	The model or type of the pump.
Provider	pick list: Equipment Provider Type	required		The provider of the pump.

ExpenseOf	pick list: Equipment Expense Of Type	required		Who is paying for the use of the pump.
RentalCompany	ets:nameValue	optional	30	The name of the rental company if the pump is rented.
SerialNo	ets:nameValue	optional	20	The serial number of the pump.
StrokeLength	xsd:decimal	optional	8.3	Pump stroke length.
RodSize	xsd:decimal	optional	8.3	Pump rod size useful for calculating displacements for duplex pumps.
PumpStyle	pick list: Pump Style Type	optional		The style of the pump.
Remarks	elements	optional		Remarks and/or comments.

5.6.4.1.1 MudPump/StrokeLength Element

The `Usage` element records the pump stroke length for a mud pump.
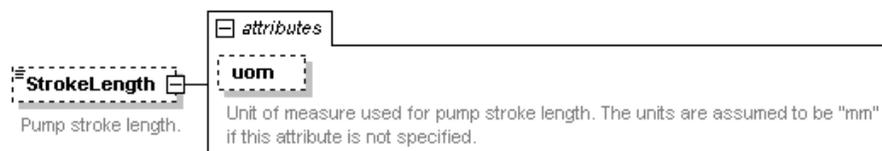
Attributes

Name	Type	Use	Size	Description / Constraints
uom	pick list: Length Units	optional		Unit of measure for pump stroke length. The units are assumed to be "mm" if this attribute is not specified.

5.6.4.1.2 MudPump/RodSize Element

The `RodSize` element records the pump rod size. This is useful for calculating displacements for duplex pumps.
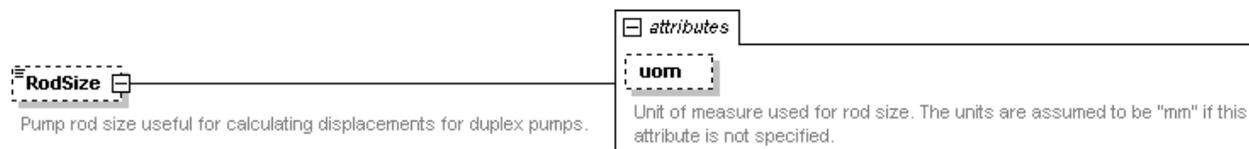
Attributes

Name	Type	Use	Size	Description / Constraints
uom	pick list: Length Units	optional		Unit of measure for rod size. The units are assumed to be "mm" if this attribute is not specified.

5.6.4.1.3 MudPump/Remarks Element

The `Remarks` element is an optional element that allows general text associated with a mud pump.

Child Elements

Name	Content	Use	Size	Description / Constraints
Remark	ets:textValue	1 or more	1000	The text of a remark or comment. The contents represents the complete text of the comments entered at one particular time White space and new lines are preserved. The order of these elements corresponds to the order in which comments were entered.

5.6.5 Equipment/Bits Element

The `Bits` element is an optional element that contains information on the drill bits used or pulled.
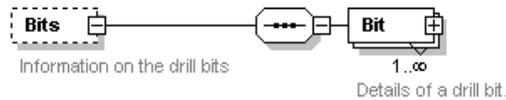
Child Elements

Name	Content	Use	Description / Constraints
Bit	elements	1 or more	Details of a drill bit used or pulled. The standard does not enforce any specific ordering to the instances of these elements.

5.6.5.1 Bits/Bit Element

The `Bit` element is a recurring element within the `Bits` element.

BitNo

Bit Number. Examples: "1A", "2RR", etc.

Size ⊞

The outside diameter of the bit.

IADCCode1

IADC Rock Bit Classification Code - first position. The first number designates the series (mill tooth or insert bit). Valid values are 1 to 8 or "A" to "Z".

IADCCode2

IADC Rock Bit Classification Code - second position. The second number designates the type (hardness). Valid values are 1 to 4.

IADCCode3

IADC Rock Bit Classification Code - third position. The third number designates the features (gage protection, bearings etc.). Valid values are 1 to 8.

IADCCode4

IADC Rock Bit Classification Code - fourth position. The fourth character designates fetaures. Valid values are 1 to 8 or "A" to "Z".

Manufacturer

The bit manufacturer.

BitType

The type of bit (Brand name such as "J22", "HP51", etc.).

SerialNo

Bit serial number.

Bit 1..∞
Details of a drill bit.

JetsCount

Number of jets installed in the bit.

JetRemark

Comments about the bit jets such as the number of jets, their orifice diameters and/or type such as "Open" or "Centre Jet".

BitJets ⊞

Details of the bit's jets.

DepthIn ⊞

The depth (KB) at which the bit went into the well on the current run.

DepthOut ⊞

The depth (KB) at which the bit was pulled.

HoursRunToday

The length of time the bit was in the well over the day, actually drilling on bottom, expressed in quarter hours.

CumulativeHoursRun

Cumulative length of time the bit has been used including today, expressed in quarter hours.

EntryDate

The date on which the bit began its run.

BitCondition ⊞

Condition of the bit.

TourId

The id of the tour during which the bit was in use.

Remarks ⊞

Remarks and/or comments.

Each instance of the `Bit` element contains all the details of a drill bit used or pulled during a tour. The standard does not enforce any specific ordering to the instances of

these elements but they would typically be in the order in which they were recorded.

Child Elements

Name	Content	Use	Size	Description / Constraints
BitNo	ets:nameValue	required	6	Bit Number. Examples: "1A", "2RR", etc.
Size	xsd:decimal	required	8.3	The outside diameter of the bit.
IADCCode1	ets:nameValue	optional	1	IADC Rock Bit Classification Code – first position. The first number designates the series (mill tooth or insert bit). Valid values are 1 to 8 or "A" to "Z".
IADCCode2	xsd:positiveInteger	optional	1.0	IADC Rock Bit Classification Code – second position. The second number designates the type (hardness). Valid values are 1 to 4.
IADCCode3	xsd:positiveInteger	optional	1.0	IADC Rock Bit Classification Code – third position. The third number designates the features (gage protection, bearings etc.). Valid values are 1 to 8.
IADCCode4	ets:nameValue	optional	1	IADC Rock Bit Classification Code - fourth position. The fourth character designates features. Valid values are 1 to 8 or "A" to "Z".
Manufacturer	ets:nameValue	optional	20	The bit manufacturer.
BitType	ets:nameValue	optional	20	The type of bit (Brand name such as "J22", "HP51", etc.).
SerialNo	ets:nameValue	optional	20	Bit serial number.
JetsCount	xsd:nonNegativeInteger	optional	2.0	Number of jets installed in the bit.
JetRemark	ets:textValue	optional	40	Comments about the bit jets such as the number of jets, their orifice diameters and/or type such as "Open" or "Centre Jet".
BitJets	elements	optional		Details of the bit's jets.
DepthIn	xsd:decimal	optional	7.2	The depth (KB) at which the bit went into the well on the current run.
DepthOut	xsd:decimal	optional	7.2	The depth (KB) at which the bit was pulled.
HoursRunToday	xsd:decimal	optional	4.2	The length of time the bit was in the well, over the day, actually

				drilling on bottom, expressed in quarter hours.
CumulativeHoursRun	xsd:decimal	required	6.2	Cumulative length of time the bit has been used including today, expressed in quarter hours.
EntryDate	xsd:date	optional		The date on which the bit began its run.
BitCondition	elements	optional		Condition of the bit.
TourId	xsd:positiveInteger	required	1.0	The id of the tour during which the bit was in use.
Remarks	elements	optional		Remarks and/or comments associated with the bit.

5.6.5.1.1 Bit/Size Element

The Size element records the outside diameter of a bit.
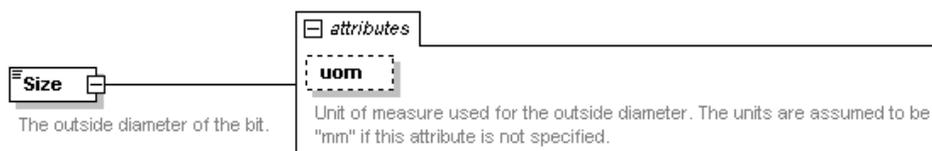
Attributes

Name	Type	Use	Size	Description / Constraints
uom	pick list: Diameter Units	optional		Unit of measure used for the outside diameter. The units are assumed to be "mm" if this attribute is not specified.

5.6.5.1.2 Bit/BitJets Element

The BitJets element is an optional element that contains the details of a bit's jets.
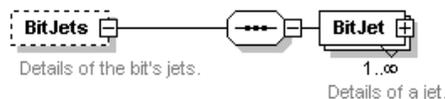
Child Elements

Name	Content	Use	Description / Constraints
BitJet	elements	1 or more	Detail on a drill bit's jet. The standard does not enforce any specific ordering to the instances of these elements.

5.6.5.1.2.1 BitJets/BitJet Element

The BitJet element is a recurring element within the BitJets element.
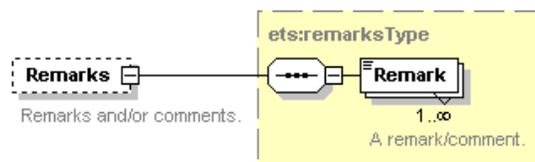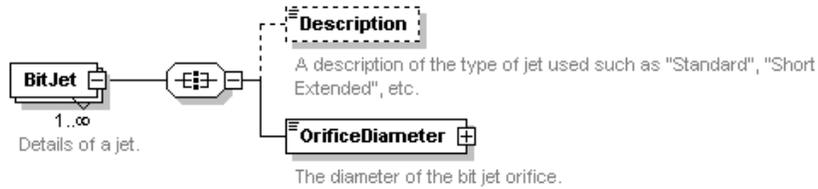
Each instance of the `BitJet` element contains all the details of a jet of a drill bit. The standard does not enforce any specific ordering to the instances of these elements but they would typically be in the order in which they were recorded.

Child Elements

Name	Content	Use	Size	Description / Constraints
Description	ets:textValue	optional	20	A description of the type of jet used such as "Standard", "Short Extended", etc.
OrificeDiameter	xsd:decimal	required	8.3	The diameter of the bit jet orifice.

5.6.5.1.2.1.1 BitJet/OrificeDiameter Element

The `OrificeDiameter` element records the diameter of a bit jet orifice.
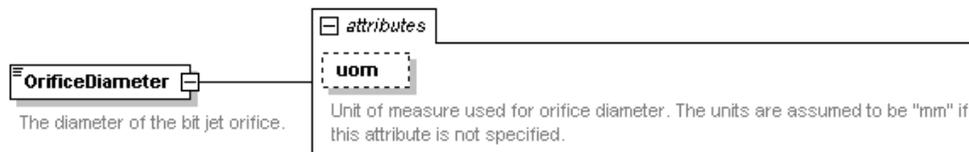
Attributes

Name	Type	Use	Size	Description / Constraints
uom	pick list: Diameter Units	optional		Unit of measure used for orifice diameter. The units are assumed to be "mm" if this attribute is not specified.

5.6.5.1.3 Bit/DepthIn Element

The `DepthIn` element records the depth (KB) at which the bit went into the well on the current run.
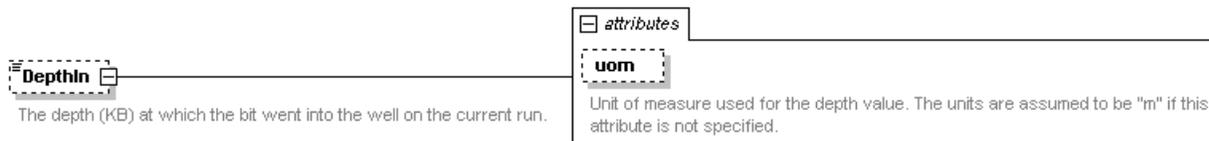
Attributes

Name	Type	Use	Size	Description / Constraints
uom	pick list: Length Units	optional		Unit of measure used for the depth value. The units are assumed to be "m" if this attribute is not specified.

5.6.5.1.4 Bit/DepthOut Element

The `DepthOut` element records the depth (KB) at which the bit was pulled.
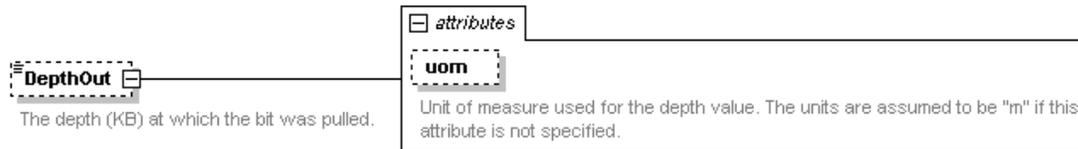
Attributes

Name	Type	Use	Size	Description / Constraints
uom	pick list: Length Units	optional		Unit of measure used for the depth value. The units are assumed to be "m" if this attribute is not specified.

5.6.5.1.5 Bit/BitCondition Element

The `BitCondition` element records the condition of a drill bit.
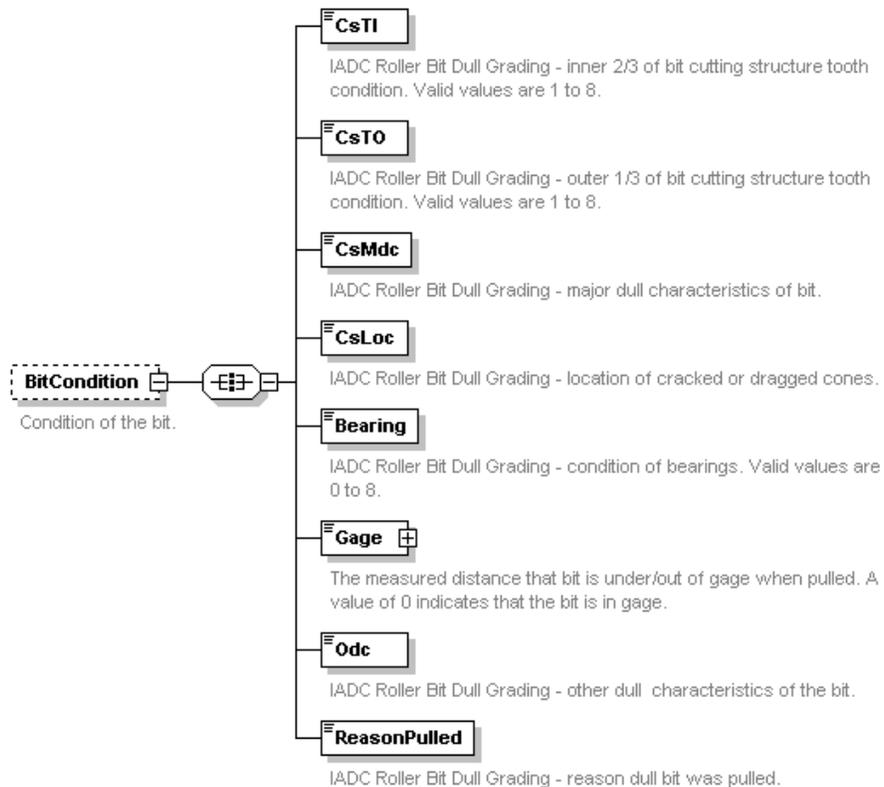
Child Elements

Name	Content	Use	Size	Description / Constraints
CsTI	pick list: IADC Cutting Structure Code	required		IADC Roller Bit Dull Grading – inner 2/3 of bit cutting structure tooth condition.

CsTO	pick list: IADC Cutting Structure Code	required		IADC Roller Bit Dull Grading – outer 1/3 of bit cutting structure tooth condition.
CsMdc	pick list: IADC Dull Characteristics Code	required		IADC Roller Bit Dull Grading – major dull characteristics of bit.
CsLoc	pick list: IADC Location Code	required		IADC Roller Bit Dull Grading – location of cracked or dragged cones.
Bearing	pick list: IADC Bearing/Seals Code	required		IADC Roller Bit Dull Grading – condition of bearings. Valid values are 0 to 8.
Gage	xsd:decimal	required	8.3	The measured distance that bit is under/out of gage when pulled. A value of 0 indicates that the bit is in gage.
Odc	pick list: IADC Dull Characteristics Code	required		IADC Roller Bit Dull Grading – other dull characteristics of the bit.
ReasonPulled	pick list: IADC Reason Pulled Code	required		IADC Roller Bit Dull Grading – reason dull bit was pulled.

5.6.5.1.5.1 BitCondition/Gage Element

The `Gage` element records the measured distance that a bit is under/out of gage when pulled. A value of 0 indicates that the bit is in gage.
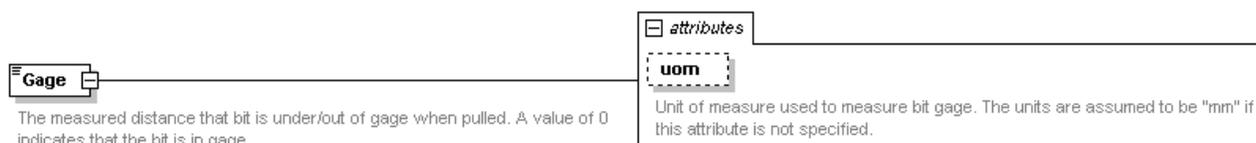
Attributes

Name	Type	Use	Size	Description / Constraints
uom	pick list: Diameter Units	optional		Unit of measure used to measure bit gage. The units are assumed to be "mm" if this attribute is not specified.

5.6.5.1.6 Bit/Remarks Element

The `Remarks` element is an optional element that allows general text associated with a drill bit.

Child Elements

Name	Content	Use	Size	Description / Constraints
Remark	ets:textValue	1 or more	1000	The text of a remark or comment. The contents represents the complete text of the comments entered at one particular time
				White space and new lines are preserved.
				The order of these elements corresponds to the order in which comments were entered.

5.7 DayTour/DayPayroll Element

The `DayPayroll` element records the payroll-specific details for a day.

Camp
Type of camp provided.

DayPayroll
Payroll-specific details for the day.

IsTD4
When confirmed by the rig manager, indicates whether TD4's are required and have been completed.
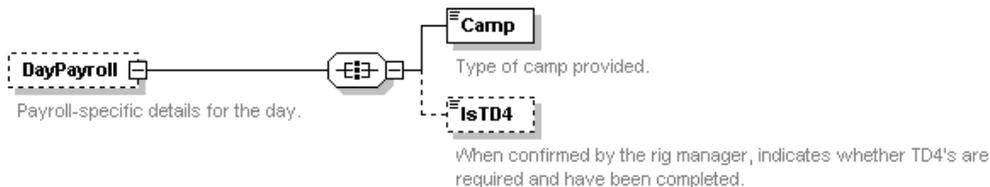
Child Elements

Name	Content	Use	Size	Description / Constraints
Camp	pick list: Camp Type	required		The type of camp provided.
IsTD4	xsd:boolean	optional		When confirmed by the rig manager, indicates whether TD4's are required and have been completed.
				The lack of this element indicates that there is no rig manager confirmation of whether TD4's were completed or not.

5.8 DayTour/Tours Element

The `Tours` element is a required element that contains the details of all the tours recorded for a day.

Tours
The tours for the day of the well.

Tour
1..∞
Each specific tour of the well for the day.

Child Elements

Name	Content	Use	Description / Constraints
Tour	elements	1 or more	A specific tour of the well.
			The order of these elements is chronologically by `StartTime` within a `Tours` element.
			Each instance of the `Tour` element corresponds to a specific tour of the well. The `StartTime` and `EndTime` elements of the `Tour` element must

| | | | define a unique non-overlapping time interval for each instance within a `Tours` element. |
| | | | Section 6.0 provides details of the `Tour` element. |

5.9 DayTour/Others Element

The `Others` element is an optional element that allows implementation-specific information for a day to be included in the file.
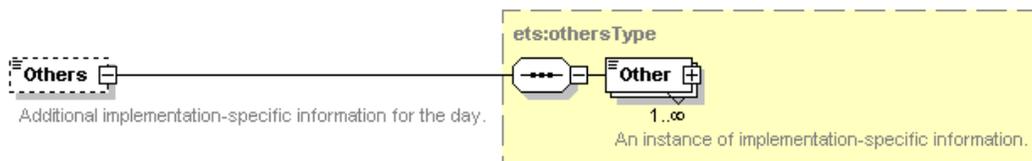
Child Elements

Name	Content	Use	Description / Constraints
Other	elements	1 or more	Additional implementation-specific information for the day.
			The standard does not enforce any specific ordering to the instances of these elements.

5.9.1 Others/Other Element

The `Other` element is a recurring element within the `Others` element.

The standard does not enforce any specific ordering to the instances of the `Other` element although implementations may have a defined order to their specific elements.

Attributes

Name	Type	Use	Size	Description / Constraints
id	ets:idValue	required	30	Identifier used to reference this instance.
				The value must conform to the constraints imposed by the type.
				More than one element may have the same value for this attribute.

Child Elements

Name	Content	Use	Description / Constraints
any names from any namespace	mixed (text and elements)	0 or more	The text and XML elements storing implementation-specific information.
			The standard does not enforce any specific ordering to the instances of these elements.
			There are no restrictions imposed on the contents.

6.0 TOUR ELEMENT

The `Tour` element is a recurring element within the `Tours` element.
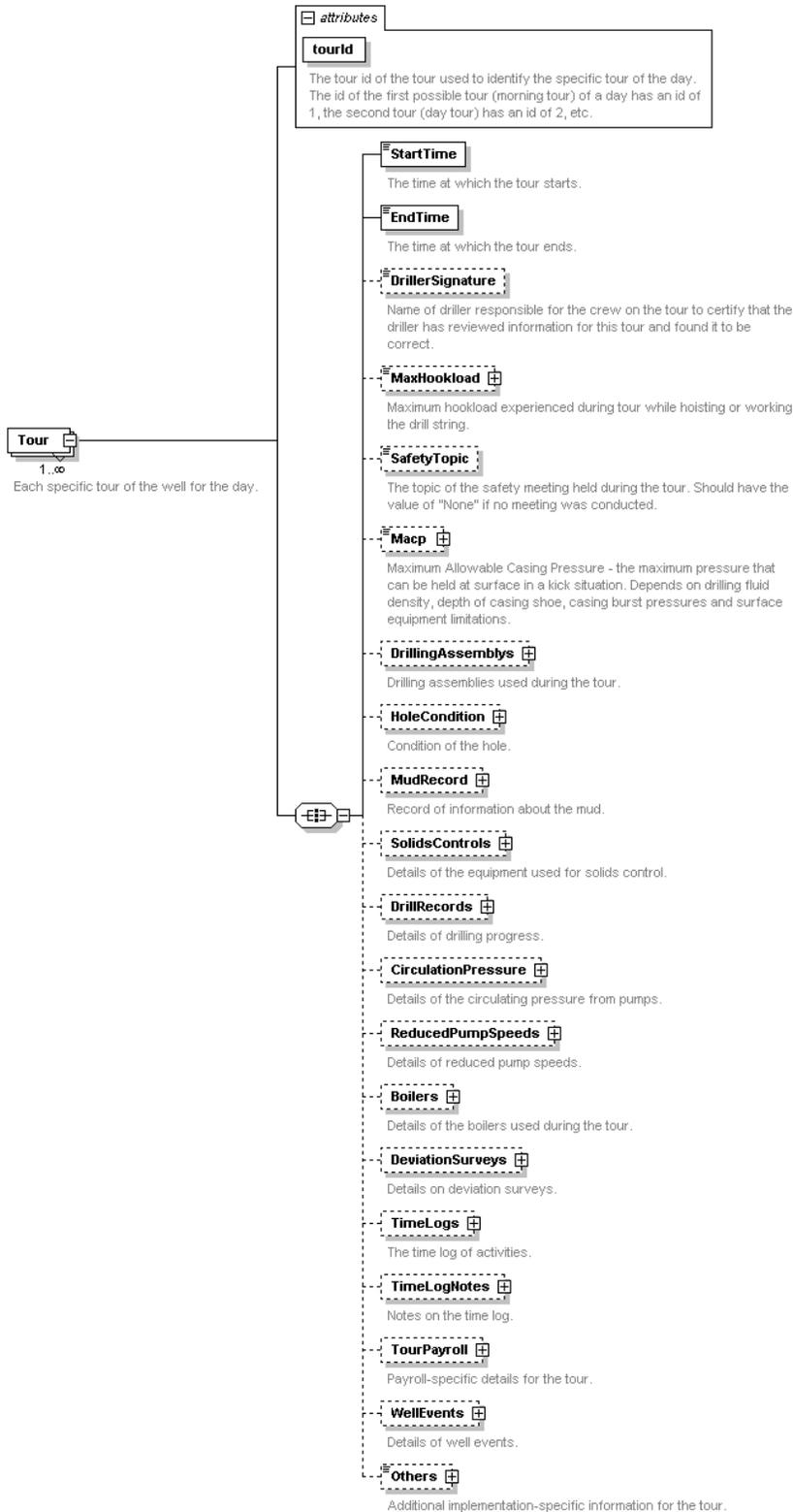
Each instance of the `Tour` element contains all the details of one tour for a day of the well. The order of these elements is chronologically by `StartTime` within a `Tours` element. Each instance corresponds to a specific tour and, as such, each must define a unique non-overlapping time interval (via their `StartTime` and `EndTime` values).

Attributes

Name	Type	Use	Size	Description / Constraints
tourId	xsd:positiveInteger	required	1.0	The tour id of the tour used to identify the specific tour of the day. The id of the first possible tour (morning tour) of a day has an id of 1, the second tour (day tour) has an id of 2, etc. This value is referenced by the `Change` element to uniquely identify a specific tour within a day.

Child Elements

Name	Content	Use	Size	Description / Constraints
StartTime	ets:dateTimeValue	required		The time at which the tour starts.
EndTime	ets:dateTimeValue	required		The time at which the tour ends.
DrillerSignature	xsd:nameValue	optional	36	Name of driller responsible for the crew on the tour to certify that the driller has reviewed information for this tour and found it to be correct. The lack of this element indicates that the driller has not signed the tour.
MaxHookload	xsd:decimal	optional	10.5	Maximum hookload experienced during tour while hoisting or working the drill string.
SafetyTopic	xsd:textValue	optional	50	The topic of the safety meeting held during the tour. Should have the value of "None" if no meeting was conducted.
Macp	xsd:nonNegative Integer	optional	6.0	Maximum Allowable Casing Pressure – the maximum pressure that can be held at surface in a kick situation. Depends on drilling fluid density, depth of casing shoe, casing burst pressures and surface equipment limitations.
DrillingAssemblys	elements	optional		Drilling assemblies used during the tour.
HoleCondition	elements	optional		Condition of the hole.
MudRecord	elements	optional		Record of information about the mud.
SolidsControls	elements	optional		Details of the equipment used for solids control.
DrillRecords	elements	optional		Details of drilling progress.

CirculationPressure	elements	optional		Details of the circulating pressure from pumps.
ReducedPumpSpeeds	elements	optional		Details of reduced pump speeds.
Boilers	elements	optional		Details of boilers used during the tour.
DeviationSurveys	elements	optional		Details on deviation surveys.
TimeLogs	elements	optional		The time log of activities.
TimeLogNotes	elements	optional		Notes on the time log.
TourPayroll	elements	optional		Payroll-specific details for the tour.
WellEvents	elements	optional		Details of well events.
Others	elements	optional		Additional implementation-specific information for the tour.

6.1 Tour/MaxHookload Element

The `MaxHookload` element records the maximum hookload experienced during the tour while hoisting or working the drill string.
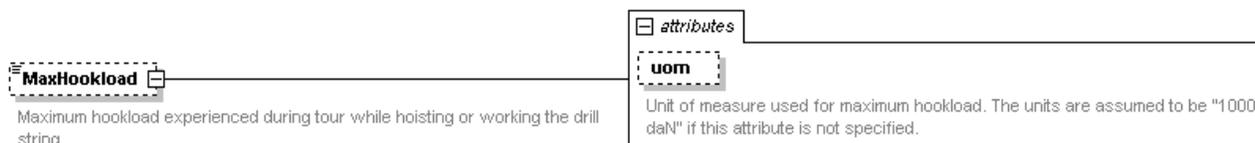
MaxHookload
Maximum hookload experienced during tour while hoisting or working the drill string.

attributes
uom
Unit of measure used for maximum hookload. The units are assumed to be "1000 daN" if this attribute is not specified.

Attributes

Name	Type	Use	Size	Description / Constraints
uom	pick list: Weight Units	optional		Unit of measure used for maximum hookload. The units are assumed to be "1000 daN" if this attribute is not specified.

6.2 Tour/Macp Element

The `Macp` element records the Maximum Allowable Casing Pressure – the maximum pressure that can be held at surface in a kick situation. It depends on drilling fluid density, depth of casing shoe, casing burst pressures and surface equipment limitations.

Macp
Maximum Allowable Casing Pressure — The maximum pressure that can be held at surface in a kick situation. Depends on drilling fluid density, depth of casing shoe, casing burst pressures and surface equipment limitations.

attributes
uom
Unit of measure used for casing pressure. The units are assumed to be "kPa" if this attribute is not specified.
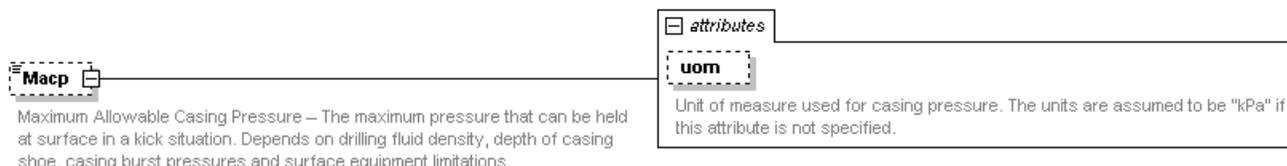
Attributes

Name	Type	Use	Size	Description / Constraints
uom	pick list: Pressure Units	optional		Unit of measure used for casing pressure. The units are assumed to be "kPa" if this attribute is not specified.

6.3 Tour/DrillingAssemblys Element

The `DrillingAssemblys` element is an optional element that contains information on the drilling assemblies used during the tour.
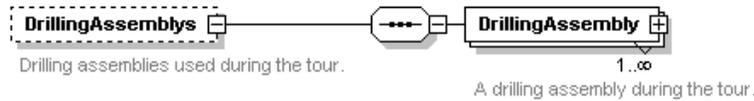
Child Elements

Name	Content	Use	Description / Constraints
DrillingAssembly	elements	1 or more	Details of a drilling assembly during a tour. The standard does not enforce any specific ordering to the instances of these elements.

6.3.1 DrillingAssemblys/DrillingAssembly Element

The `DrillingAssembly` element is a recurring element within the `DrillingAssemblys` element.
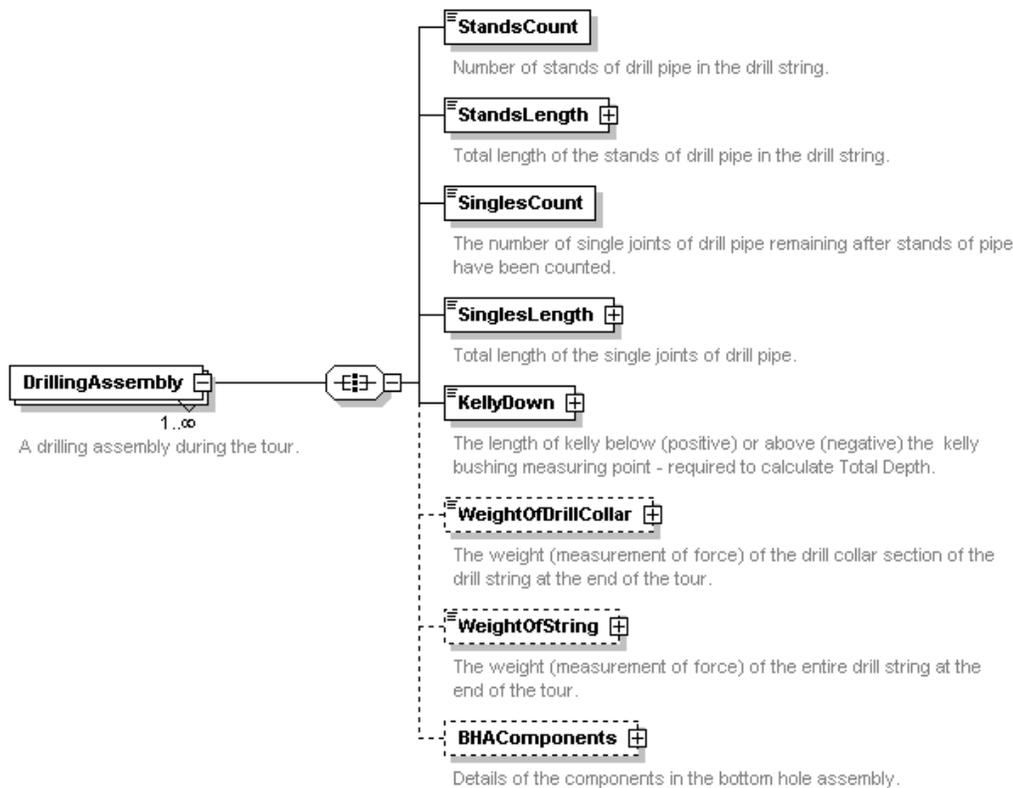
Each instance of the `Bit` element contains all the details of a specific drilling assembly used during a tour. The standard does not enforce any specific ordering to the instances of these elements but they would typically be in the order in which the assemblies were used.

Child Elements

Name	Content	Use	Size	Description / Constraints
StandsCount	xsd:nonNegativeInteger	required	4.0	Number of stands of drill pipe in the drill string.
StandsLength	xsd:decimal	required	10.5	Total length of the stands of drill pipe in the drill string.
SinglesCount	xsd:nonNegativeInteger	required	3.0	The number of single joints of drill pipe remaining after stands of pipe have been counted.
SinglesLength	xsd:decimal	required	10.5	Total length of the single joints of drill pipe.
KellyDown	xsd:decimal	required	10.5	The length of kelly below (positive) or above (negative) the kelly bushing measuring point – required to calculate Total Depth.
WeightOfDrillCollar	xsd:decimal	optional	10.5	The weight (measurement of force) of the drill collar section of the drill string at the end of the tour.
WeightOfString	xsd:decimal	optional	10.5	The weight (measurement of force) of the entire drill string at the end of the tour.
BHAComponents	elements	optional		Details of the components in the bottom hole assembly.

6.3.1.1 DrillingAssembly/StandsLength Element

The StandsLength element records the total length of the stands of drill pipe in the drill string.
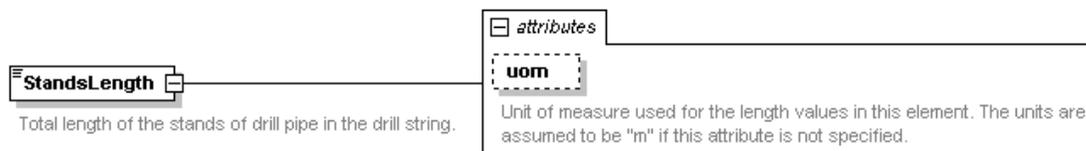
Attributes

Name	Type	Use	Size	Description / Constraints
uom	pick list: Length Units	optional		Unit of measure used for the length values in this element. The units are assumed to be "m" if this attribute is not specified.

6.3.1.2 DrillingAssembly/SinglesLength Element

The SinglesLength element records the total length of the single joints of drill pipe.
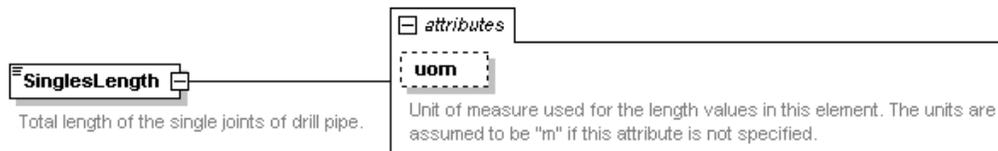
Total length of the single joints of drill pipe.

uom — Unit of measure used for the length values in this element. The units are assumed to be "m" if this attribute is not specified.

Attributes

Name	Type	Use	Size	Description / Constraints
uom	pick list: Length Units	optional		Unit of measure used for the length values in this element. The units are assumed to be "m" if this attribute is not specified.

6.3.1.3 DrillingAssembly/KellyDown Element

The `KellyDown` element records the length of kelly above or below the kelly bushing measuring point – required to calculate Total Depth.
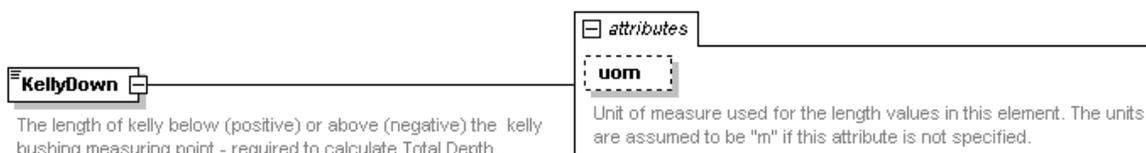
The length of kelly below (positive) or above (negative) the kelly bushing measuring point - required to calculate Total Depth.

uom — Unit of measure used for the length values in this element. The units are assumed to be "m" if this attribute is not specified.

Attributes

Name	Type	Use	Size	Description / Constraints
uom	pick list: Length Units	optional		Unit of measure used for the length values in this element. The units are assumed to be "m" if this attribute is not specified.

6.3.1.4 DrillingAssembly/WeightOfDrillCollar Element

The `WeightOfDrillCollar` element records the weight (measurement of force) of the drill collar section of the drill string at the end of the tour.

The weight (measurement of force) of the drill collar section of the drill string at the end of the tour.

uom — Unit of measure used for the weight values in this element. The units are assumed to be "1000 daN" if this attribute is not specified.
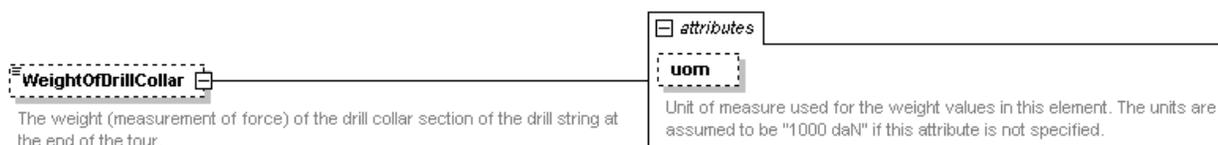
Attributes

Name	Type	Use	Size	Description / Constraints
uom	pick list: Weight Units	optional		Unit of measure used for the weight values in this element. The units are assumed to be "1000 daN" if this attribute is not specified.

6.3.1.5 DrillingAssembly/WeightOfString Element

The `WeightOfString` element records the weight (measurement of force) of the entire drill string at the end of the tour.

CANADIAN ASSOCIATION OF OILWELL DRILLING CONTRACTORS
ELECTRONIC TOUR SHEET STANDARD
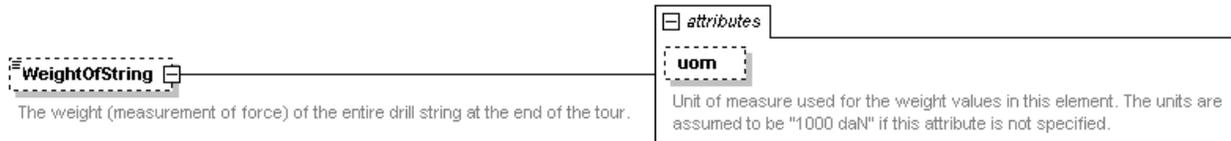
Attributes

Name	Type	Use	Size	Description / Constraints
uom	pick list: Weight Units	optional		Unit of measure used for the weight values in this element. The units are assumed to be "1000 daN" if this attribute is not specified.

6.3.1.6 DrillingAssembly/BHAComponents Element

The BHAComponents element is an optional element that contains the details of the bottom hole assembly components in the drilling assembly.

Details of the components in the bottom hole assembly.

Details on a component of the bottom hole assembly.
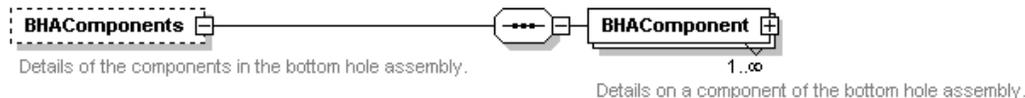
Child Elements

Name	Content	Use	Description / Constraints
BHAComponent	elements	1 or more	Details on a component of the bottom hole assembly. The instances of these elements are in reverse depth order according to their position in the drilling assembly. The tool on the bottom (usually a drill bit) would be first.

6.3.1.6.1 BHAComponents/BHAComponent Element

The BHAComponent element is a recurring element within the BHAComponents element.
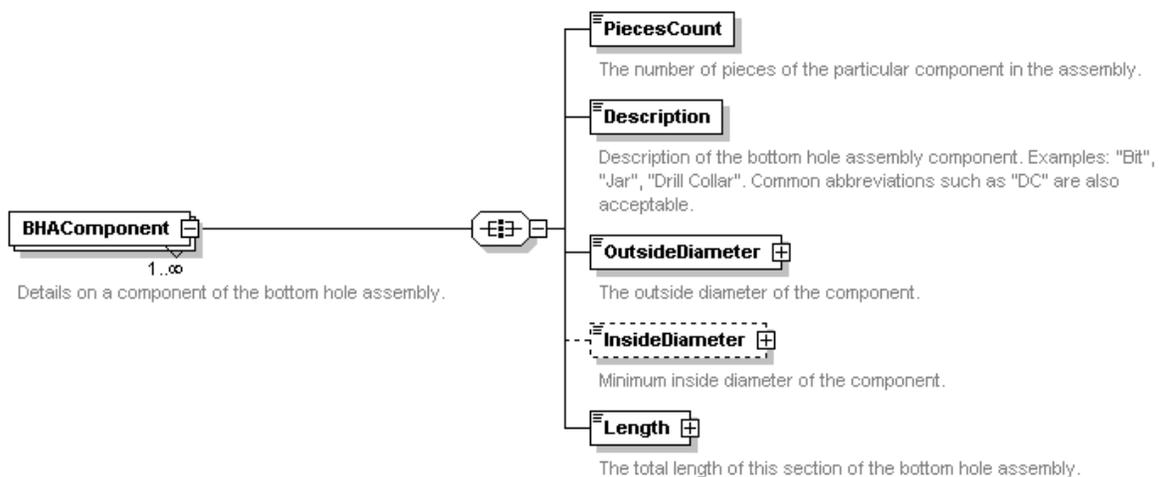
Each instance of the BHAComponent element contains the details of a component of the bottom hole assembly. The standard does not enforce any specific ordering to the instances of these elements but the instances of these elements are in reverse depth order according to their position in the drilling assembly, with the tool on the bottom (usually a drill bit) first.

Child Elements

Name	Content	Use	Size	Description / Constraints
PiecesCount	xsd:positiveInteger	required	4.0	The number of pieces of the particular component in the assembly.
Description	ets:textValue	required	18	Description of the bottom hole assembly component. Examples: "Bit", "Jar", "Drill Collar". Common abbreviations such as "DC" are also acceptable.
OutsideDiameter	xsd:decimal	required	8.3	The outside diameter of the component.
InsideDiameter	xsd:decimal	required	8.3	Minimum inside diameter of the component.
Length	xsd:decimal	required	10.5	The total length of this section of the bottom hole assembly.

6.3.1.6.1.1 BHAComponent/OutsideDiameter Element

The OutsideDiameter element records the outside diameter of a drilling tool.
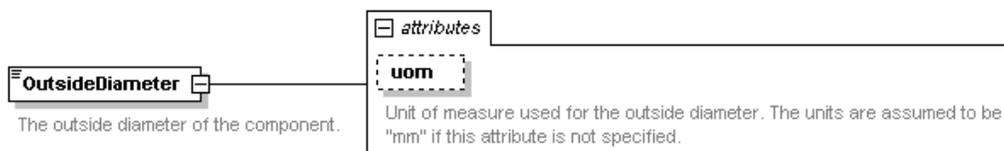
Attributes

Name	Type	Use	Size	Description / Constraints
uom	pick list: Diameter Units	optional		Unit of measure used for the outside diameter. The units are assumed to be "mm" if this attribute is not specified.

6.3.1.6.1.2 BHAComponent/Length Element

The Length element records the total length of a section of the bottom hole assembly.

Attributes

Name	Type	Use	Size	Description / Constraints

uom	pick list: Length Units	optional		Unit of measure used for the length. The units are assumed to be "m" if this attribute is not specified.

6.4 Tour/HoleCondition Element

The `HoleCondition` element is an optional element that records the condition of the hole.
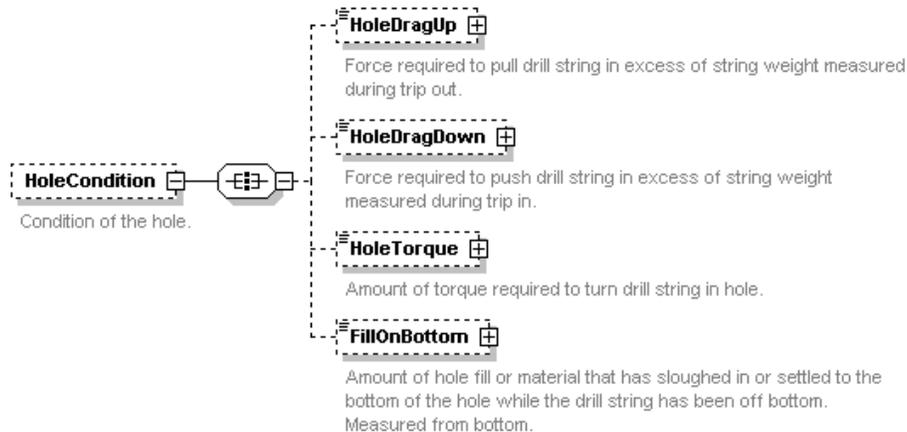
Child Elements

Name	Content	Use	Size	Description / Constraints
HoleDragUp	xsd:decimal	optional	10.5	Force required to pull drill string in excess of string weight measured during trip out.
HoleDragDown	xsd:decimal	optional	10.5	Force required to pull drill string in excess of string weight measured during trip in.
HoleTorque	xsd:decimal	optional	8.3	Amount of torque required to turn drill string in hole.
FillOnBottom	xsd:decimal	optional	7.2	Amount of hole fill or material that has sloughed in or settled to the bottom of the hole while the drill string has been off bottom. Measured from bottom.

6.4.1 HoleCondition/HoleDrag Element

The `HoleDrag` element records the force required to pull drill string in excess of string weight measured during trip out.
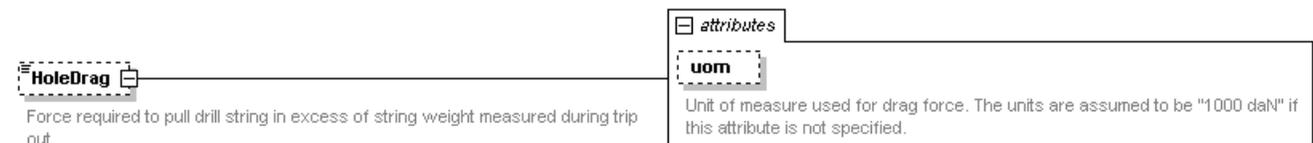
Attributes

Name	Type	Use	Size	Description / Constraints

uom	pick list: Weight Units	optional		Unit of measure used for drag force. The units are assumed to be "1000 daN" if this attribute is not specified.

6.4.2 HoleCondition/HoleTorque Element

The `HoleTorque` element records the amount of torque required to turn drill string in hole.
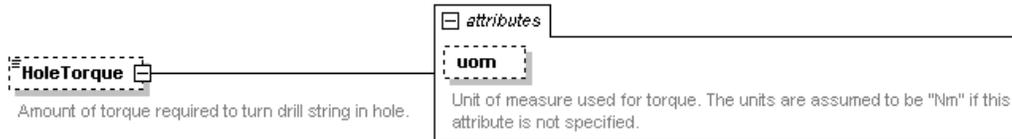
Attributes

Name	Type	Use	Size	Description / Constraints
uom	pick list: Torque Units	optional		Unit of measure used for torque. The units are assumed to be "Nm" if this attribute is not specified.

6.4.3 HoleCondition/FillOnBottom Element

The `FillOnBottom` element records the amount of fill or material that has sloughed in or settled to the bottom of the hole while the drill string has been off bottom. Measured from bottom.
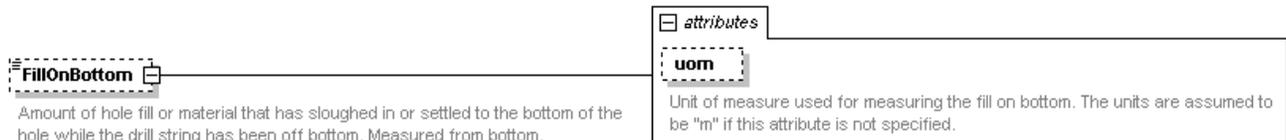
Attributes

Name	Type	Use	Size	Description / Constraints
uom	pick list: Length Units	optional		Unit of measure used for measuring the fill on bottom. The units are assumed to be "m" if this attribute is not specified.

6.5 Tour/MudRecord Element

The `MudRecord` element records information about the mud.
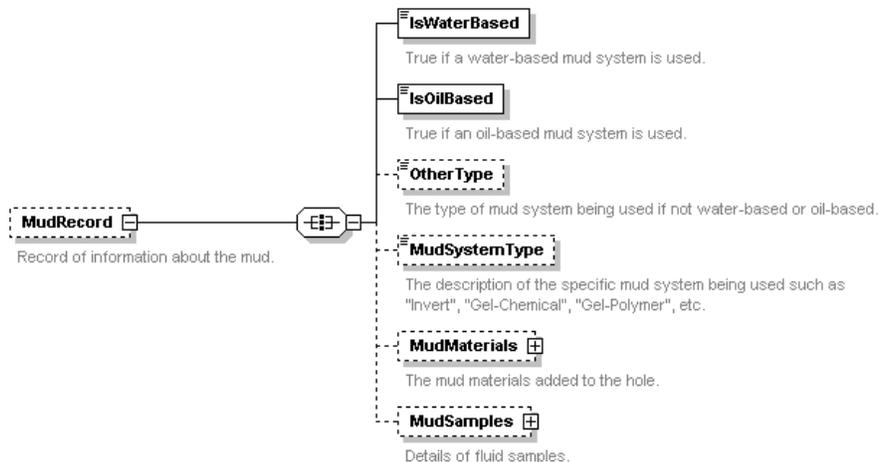
Child Elements

Name	Content	Use	Size	Description / Constraints
IsWaterBased	xsd:boolean	required		True if a water-based mud system is used.
IsOilBased	xsd:boolean	required		True if an oil-based mud system is used.
OtherType	ets:textValue	optional	50	The type of mud system being used if not water-based or oil-based.
MudSystemType	ets:textValue	optional	30	The description of the specific mud system being used such as "Invert", "Gel-Chemical", "Gel-Polymer", etc.
MudMaterials	elements	optional		The mud materials added to the hole.
MudSamples	elements	optional		Details of fluid samples.

6.5.1 MudRecord/MudMaterials Element

The MudMaterials element is an optional element that records the mud materials added to the hole.
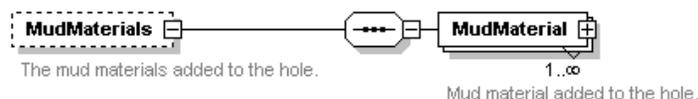
Child Elements

Name	Content	Use	Description / Constraints
MudMaterial	elements	1 or more	Details of a mud material added to the hole. The standard does not enforce any specific ordering to the instances of these elements.

6.5.1.1 MudMaterials/MudMaterial Element

The MudMaterial element is a recurring element within the MudMaterials element.
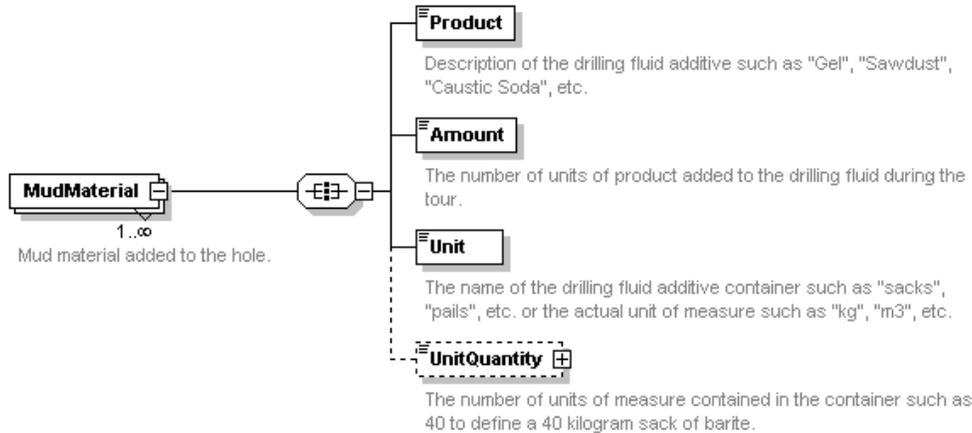
Each instance of the `MudMaterial` element contains all the details of a mud material added to the hole. The standard does not enforce any specific ordering to the instances of these elements but they would typically be in the order in which they were recorded.

Child Elements

Name	Content	Use	Size	Description / Constraints
Product	ets:nameValue	required	24	Description of the drilling fluid additive such as "Gel", "Sawdust", "Caustic Soda", etc.
Amount	xsd:positiveInteger	required	9.0	The number of units of product added to the drilling fluid during the tour.
Unit	ets:nameValue	required	16	The name of the drilling fluid additive container such as "sacks", "pails", etc. or the actual unit of measure such as "kg", "m3", etc.
UnitQuantity	xsd:decimal	optional	9.3	The number of units of measure contained in the container such as 40 to define a 40 kilogram sack of barite.

6.5.1.1.1 MudMaterial/UnitQuantity Element

The `UnitQuantity` element records the number of units of measure contained in a mud material container such as 40 to define a 40 kilogram sack of barite.
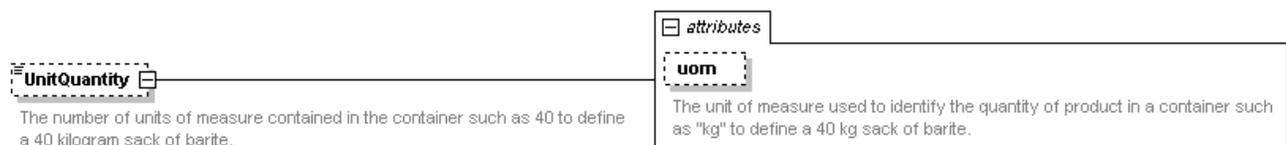
Attributes

Name	Type	Use	Size	Description / Constraints
uom	ets:nameValue	optional	12	The unit of measure used to identify the quantity of product in a container such as "kg" to define a 40 kg sack of barite.

6.5.2 MudRecord/MudSamples Element

The `MudSamples` element is an optional element that contains the details of fluid samples.
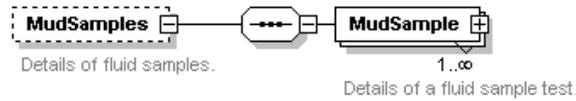
Child Elements

Name	Content	Use	Description / Constraints
MudSample	elements	1 or more	Details of a fluid sample test. The standard does not enforce any specific ordering to the instances of these elements.

6.5.2.1 MudSamples/MudSample Element

The `MudSample` element is a recurring element within the `MudSamples` element.
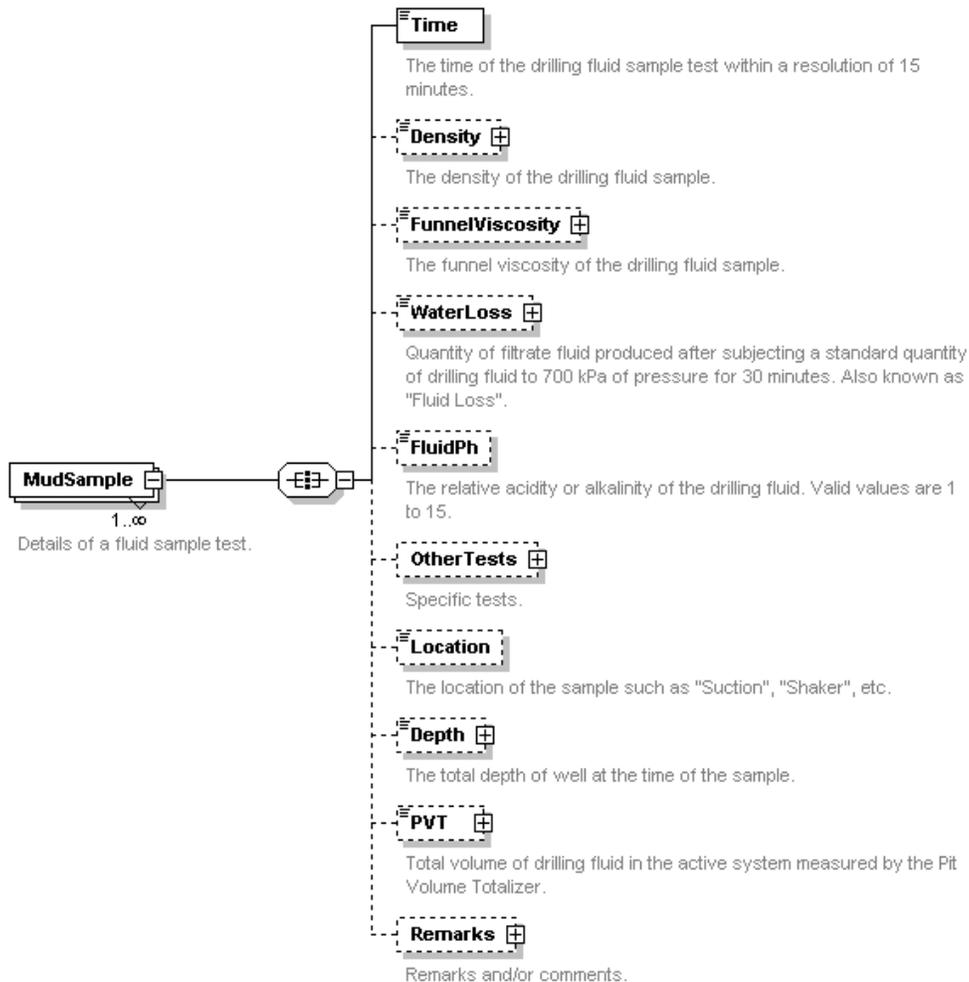
Each instance of the `MudSample` element contains all the details of a fluid sample test. The standard does not enforce any specific ordering to the instances of these elements but they would typically be in the order in which they were recorded.

Child Elements

Name	Content	Use	Size	Description / Constraints
Time	ets:timeValue	required		The time of the drilling fluid sample test within a resolution of 15 minutes.
Density	xsd:decimal	optional	9.4	The density of the drilling fluid sample.
FunnelViscosity	xsd:nonNegativeInteger	optional	4.0	The funnel viscosity of the drilling fluid sample.
WaterLoss	xsd:decimal	optional	5.2	Quantity of filtrate fluid produced after subjecting a standard quantity of drilling fluid to 700 kPa of pressure for 30 minutes. Also known as "Fluid Loss".
FluidPh	xsd:decimal	optional	3.1	The relative acidity or alkalinity of the drilling fluid. Valid values are 1 to 15.
OtherTests	elements	optional		Results from specific mud tests.
Location	ets:nameValue	optional	20	The location of the sample such as "Suction", "Shaker", etc.
Depth	xsd:decimal	optional	7.2	The total depth of well at the time of the sample.
PVT	xsd:decimal	optional	6.2	Total volume of drilling fluid in the active system measured by the Pit Volume Totalizer.
Remarks	elements	optional		Remarks and/or comments.

6.5.2.1.1 MudSample/Density Element

The `Density` element records the density of a drilling fluid sample.
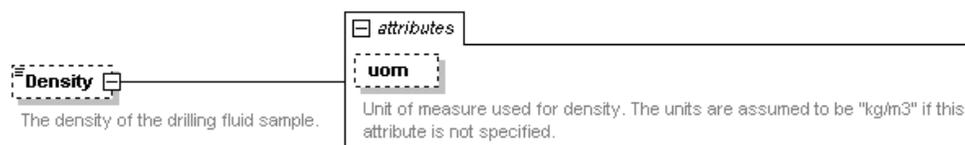
Attributes

Name	Type	Use	Size	Description / Constraints
uom	pick list: Density Units	optional		Unit of measure used for density. The units are assumed to be "kg/m3" if this attribute is not specified.

6.5.2.1.2 MudSample/FunnelViscosity Element

The `FunnelViscosity` element records the funnel viscosity of a drilling fluid sample.

The funnel viscosity of the drilling fluid sample.

Unit of measure used for viscosity. The units are assumed to be "s/l" (seconds per litre) if this attribute is not specified.
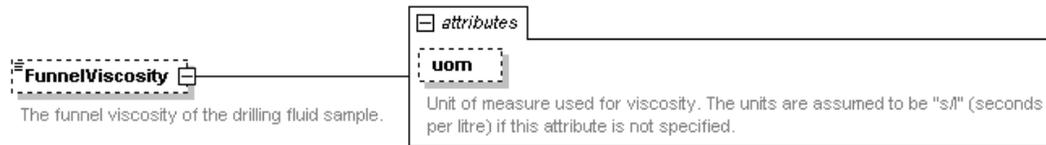
Attributes

Name	Type	Use	Size	Description / Constraints
uom	pick list: Viscosity Units	optional		Unit of measure used for viscosity. The units are assumed to be "s/l" (seconds per litre) if this attribute is not specified.

6.5.2.1.3 MudSample/WaterLoss Element

The `WaterLoss` element records the quantity of filtrate fluid produced after subjecting a standard quantity of drilling fluid to 700 kPa of pressure for 30 minutes. Also known as "Fluid Loss".

Quantity of filtrate fluid produced after subjecting a standard quantity of drilling fluid to 700 kPa of pressure for 30 minutes. Also known as "Fluid Loss".

Unit of measure used for water loss. The units are assumed to be "cm3" if this attribute is not specified.
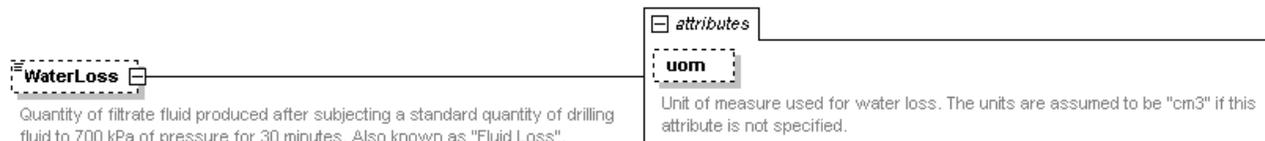
Attributes

Name	Type	Use	Size	Description / Constraints
uom	pick list: Volume Units	optional		Unit of measure used for water loss. The units are assumed to be "cm3" if this attribute is not specified.

6.5.2.1.4 MudSample/OtherTests Element

The `OtherTests` element is an optional element that contains the results from specific mud tests.

Specific tests.
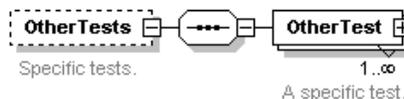
A specific test.

Child Elements

Name	Content	Use	Description / Constraints
OtherTest	elements	1 or more	Details of a specific test. The standard does not enforce any specific ordering to the instances of these elements.

6.5.2.1.4.1 OtherTests/OtherTest Element

The `OtherTest` element is a recurring element within the `OtherTests` element.

Each instance of the `OtherTest` element contains the results of a specific mud sample test. The standard does not enforce any specific ordering to the instances of these elements but they would typically be in the order in which they were recorded.

Child Elements

Name	Content	Use	Size	Description / Constraints
TestType	ets:textValue	required	20	Description of the drilling fluid sample test such as "HTHP Fluid Loss", "Alkalinity", etc.
TestValue	ets:textValue	optional	16	The value reported in the test. This is usually numeric but could be alphanumeric as well such as "1 mm soft" for a filter cake sample.

6.5.2.1.4.1.1 OtherTest/TestValue Element

The `TestValue` element records the value reported in a fluid test. This is usually numeric but could be alphanumeric as well such as "1 mm soft" for a filter cake sample.
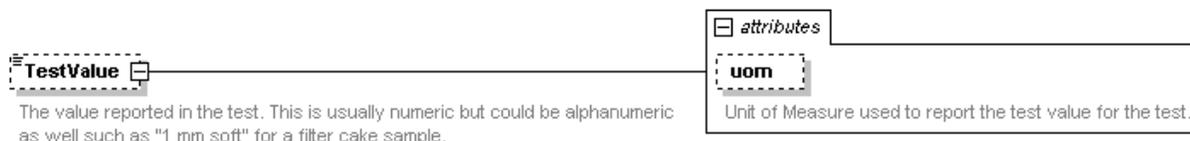
Attributes

Name	Type	Use	Size	Description / Constraints
uom	ets:nameValue	optional	12	Unit of measure used to report the test value for the test.

6.5.2.1.5 MudSample/Depth Element

The `Depth` element records the total depth of well at the time of the sample.
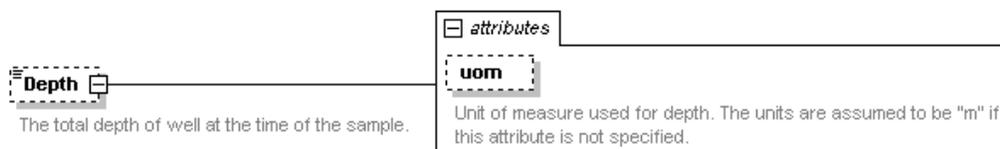
Attributes

Name	Type	Use	Size	Description / Constraints
uom	pick list:	optional		Unit of measure used for depth. The units

	Length Units			are assumed to be "m" if this attribute is not specified.

6.5.2.1.6 MudSample/PVT Element

The `PVT` element records the total volume of drilling fluid in the active system as measured by the Pit Volume Totalizer.
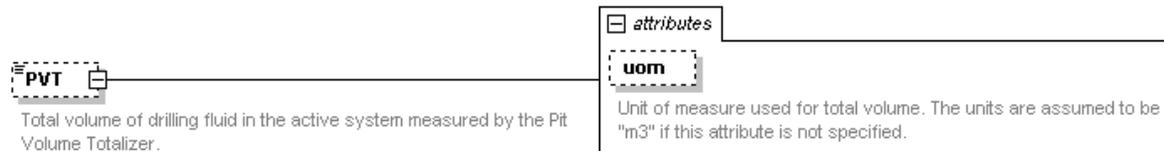
Attributes

Name	Type	Use	Size	Description / Constraints
uom	pick list: Volume Units	optional		Unit of measure used for total volume. The units are assumed to be "m3" if this attribute is not specified.

6.5.2.1.7 MudSample/Remarks Element

The `Remarks` element is an optional element that allows general text associated with a mud sample.

Child Elements

Name	Content	Use	Size	Description / Constraints
Remark	ets:textValue	1 or more	1000	The text of a remark or comment. The contents represents the complete text of the comments entered at one particular time White space and new lines are preserved. The order of these elements corresponds to the order in which comments were entered.

6.6 Tour/SolidsControls Element

The `SolidsControls` element is an optional element that records details of the equipment used for solids control.
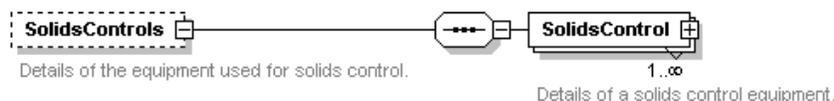
Child Elements

Name	Content	Use	Description / Constraints
SolidControl	elements	1 or more	Details of a solids control equipment. The standard does not enforce any specific ordering to the instances of these elements.

6.6.1 SolidsControls/SolidsControl Element

The `SolidsControl` element is a recurring element within the `SolidsControls` element.
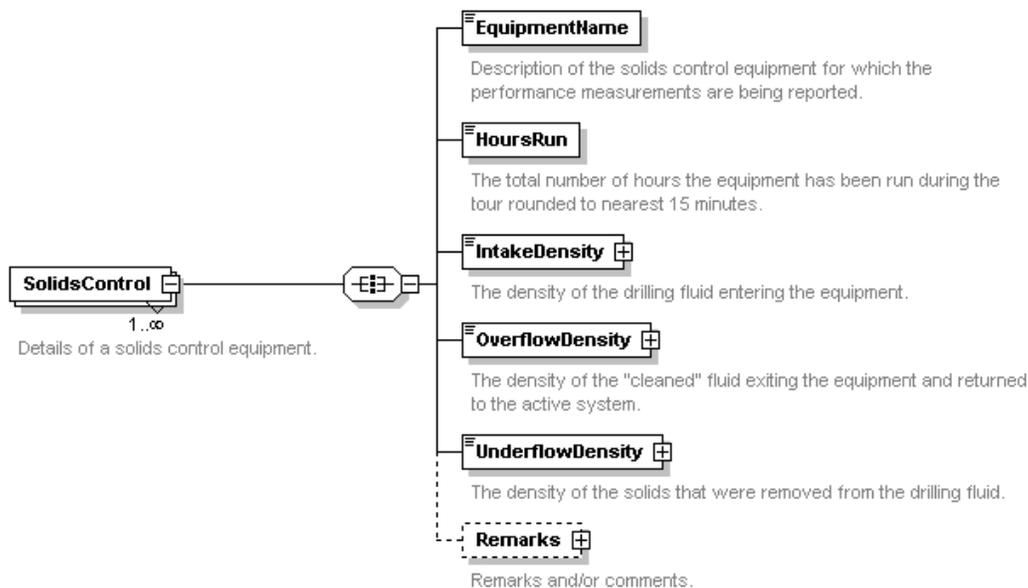
Each instance of the `SolidsControl` element contains all the details of a solids control equipment. The standard does not enforce any specific ordering to the instances of these elements but they would typically be in the order in which they were recorded.

Child Elements

Name	Content	Use	Size	Description / Constraints
EquipmentName	ets:nameValue	required	24	Description of the solids control equipment for which the performance measurements are being reported.
HoursRun	xs:decimal	required	4.2	The total number of hours the equipment has been run during the tour rounded to the nearest 15 minutes.
IntakeDensity	xs:decimal	required	9.4	The density of the drilling fluid entering the solids control equipment.
OverflowDensity	xs:decimal	required	9.4	The density of the "cleaned" fluid exiting the solids control equipment and returned to the active system.
UnderflowDensity	xs:decimal	required	9.4	The density of the solids that were removed from the drilling fluid.

Remarks	elements	optional		Remarks and/or comments.

6.6.1.1 SolidsControl/IntakeDensity Element

The `IntakeDensity` element records the density of the drilling fluid entering a solids control equipment.
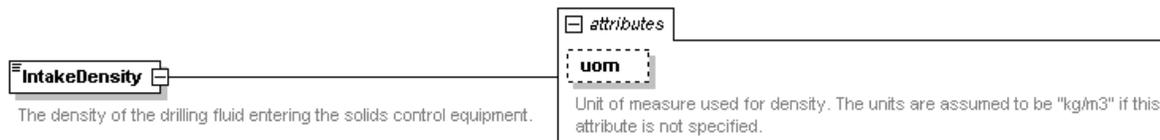
Attributes

Name	Type	Use	Size	Description / Constraints
uom	pick list	optional		Unit of measure used for density. The units are assumed to be "kg/m3" if this attribute is not specified.

6.6.1.2 SolidsControl/OverflowDensity Element

The `OverflowDensity` element records the density of the "cleaned" fluid exiting a solids control equipment and returned to the active system.
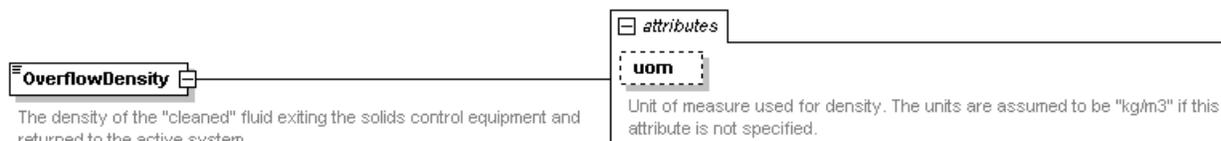
Attributes

Name	Type	Use	Size	Description / Constraints
uom	pick list	optional		Unit of measure used for density. The units are assumed to be "kg/m3" if this attribute is not specified.

6.6.1.3 SolidsControl/UnderflowDensity Element

The `UnderflowDensity` element records the density of the solids that were removed from drilling fluid.
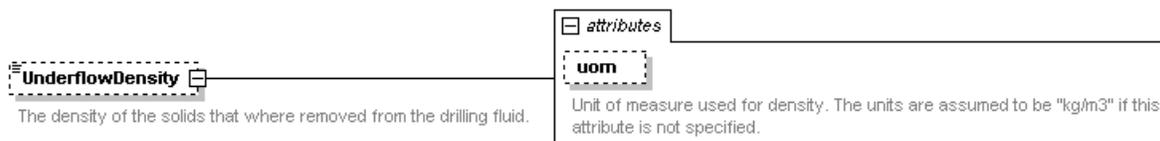
Attributes

Name	Type	Use	Size	Description / Constraints
uom	pick list	optional		Unit of measure used for density. The units are assumed to be "kg/m3" if this attribute is not specified.

6.6.1.4 SolidsControl/Remarks Element

The `Remarks` element is an optional element that allows general text associated with a solids control.

Child Elements

Name	Content	Use	Size	Description / Constraints
Remark	ets:textValue	1 or more	1000	The text of a remark or comment. The contents represents the complete text of the comments entered at one particular time White space and new lines are preserved. The order of these elements corresponds to the order in which comments were entered.

6.7 Tour/DrillRecords Element

The `DrillRecords` element is an optional element that records drilling progress.
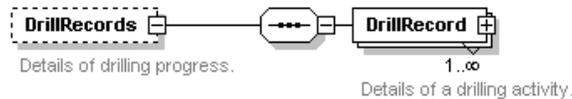
Child Elements

Name	Content	Use	Description / Constraints
DrillRecord	elements	1 or more	Details of a drilling activity. The order of these elements corresponds to the order in which drilling occurred.

6.7.1 DrillRecords/DrillRecord Element

The `DrillRecord` element is a recurring element within the `DrillRecords` element.
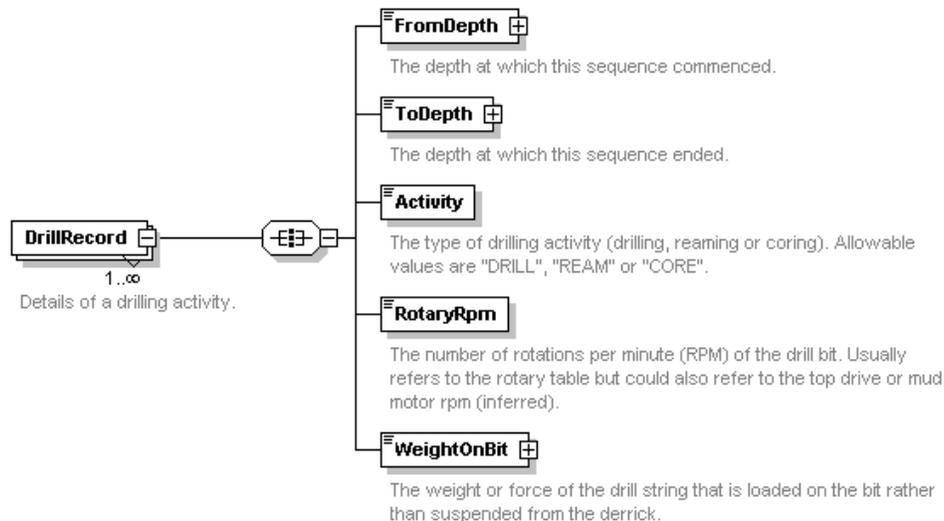
Each instance of the `DrillRecord` element contains all the details of a drilling activity. The order of these elements corresponds to the order in which drilling occurred.

Child Elements

Name	Content	Use	Size	Description / Constraints
FromDepth	xsd:decimal	required	7.2	The depth at which this sequence commenced.
ToDepth	xsd:decimal	required	7.2	The depth at which this sequence ended.
Activity	pick list: Drilling Activity Type	required		The type of drilling activity (drilling, reaming or coring).
RotaryRpm	xsd:positiveInteger	required	4.0	The number of rotations per minute (RPM) of the drill bit. Usually refers to the rotary table but could also refer to the top drive or mud motor rpm (inferred).
WeightOnBit	xsd:decimal	required	10.5	The weight or force of the drill string that is loaded on the bit rather than suspended from the derrick.

6.7.1.1 DrillRecord/FromDepth Element

The `FromDepth` element records the depth at which this sequence commenced.

Attributes

Name	Type	Use	Size	Description / Constraints

| uom | pick list: Length Units | optional | | Unit of measure used for the depth value. The units are assumed to be "m" if this attribute is not specified. |

6.7.1.2 DrillRecord/ToDepth Element

The `ToDepth` element records the depth at which this sequence ended.
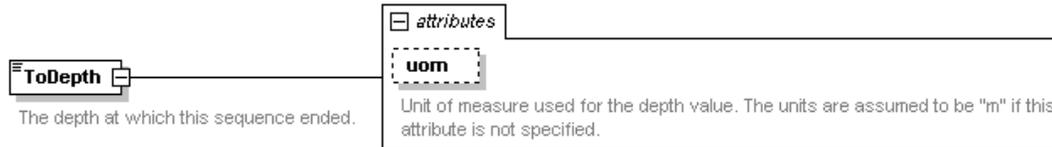
Attributes

Name	Type	Use	Size	Description / Constraints
uom	pick list: Length Units	optional		Unit of measure used for the depth value. The units are assumed to be "m" if this attribute is not specified.

6.7.1.3 DrillRecord/WeightOnBit Element

The `WeightOnBit` element records the weight or force of the drill string that is loaded on the bit rather than suspended from the derrick.
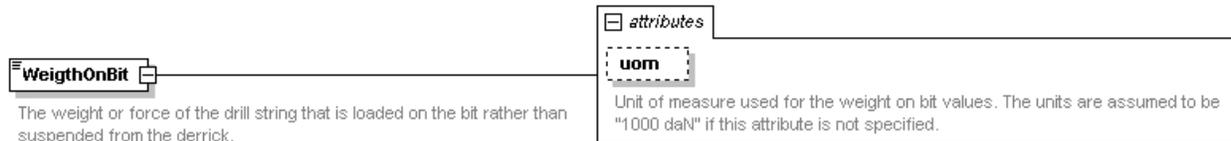
Attributes

Name	Type	Use	Size	Description / Constraints
uom	pick list: Weight Units	optional		Unit of measure used for the weight on bit values. The units are assumed to be "1000 daN" if this attribute is not specified.

6.8 Tour/CirculationPressure Element

The `CirculationPressure` element is an optional element that records details of the circulating pressure from pumps.
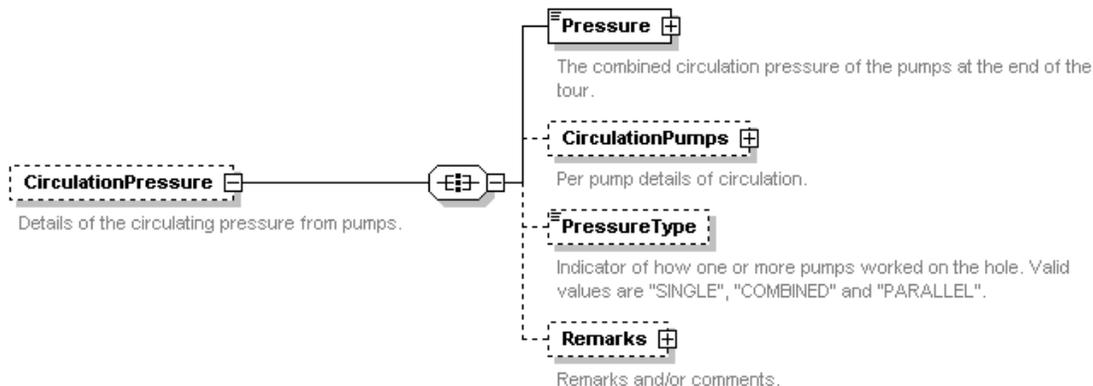
Child Elements

Name	Content	Use	Size	Description / Constraints
Pressure	xsd:nonNegativeInteger	required	6.0	The combined circulation pressure of the pumps at the end of the tour.
CirculationPumps	elements	optional		Per pump details of circulation.
PressureType	pick list: Pump Pressure Type	optional		Indicator of how one or more pumps worked on the hole.
Remarks	elements	optional		Remarks and/or comments.

6.8.1 CirculationPressure/Pressure Element

The `Pressure` element records the combined circulation pressure of the pumps at the end of the tour.
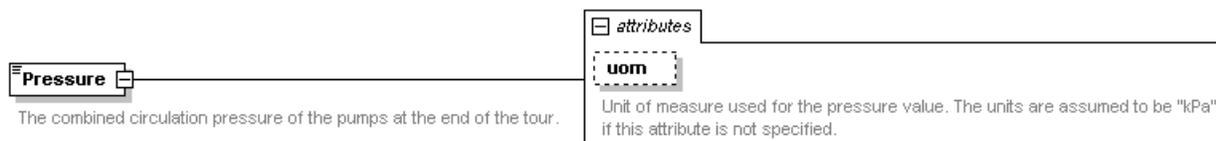
Attributes

Name	Type	Use	Size	Description / Constraints
uom	pick list: Pressure Units	optional		Unit of measure used for the pressure values. The units are assumed to be "kPa" if this attribute is not specified.

6.8.2 CirculationPressure/CirculationPumps Element

The `CirculationPumps` element records details of circulation pumps.
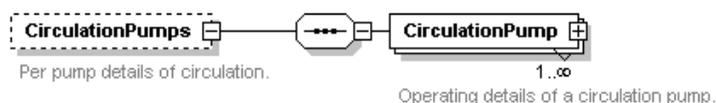
Child Elements

Name	Content	Use	Description / Constraints
CirculationPump	elements	1 or more	Operating details of a circulation pump.

			The standard does not enforce any specific ordering to the instances of these elements.

6.8.2.1 CirculationPumps/CirculationPump Element

The CirculationPump element is a recurring element within the CirculationPumps element.
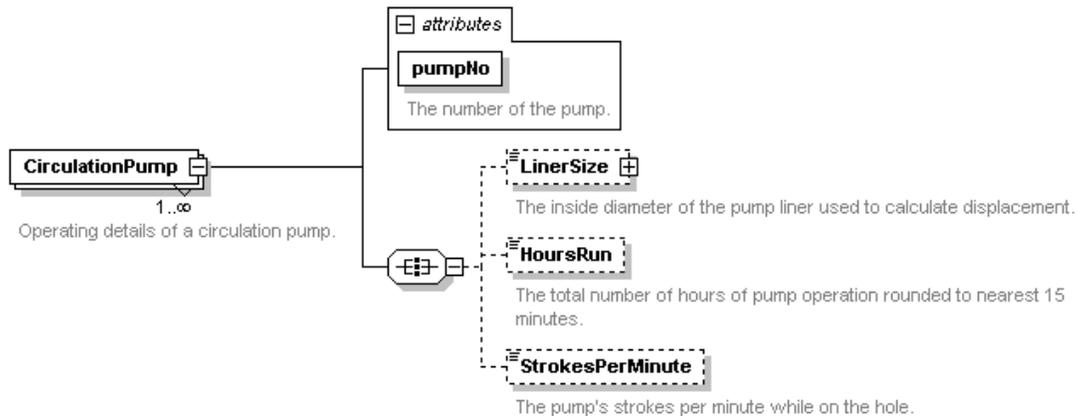
Each instance of the CirculationPump element contains the operating details of a circulation pump. There is no particular order to the instances of this element but each instance corresponds to a specific pump and, as such, each must have a unique value of pumpNo.

Attributes

Name	Type	Use	Size	Description / Constraints
pumpNo	xs:positiveInteger	required	3.0	The number of the pump. The value must reference a mud pump. That is, it must have the same value as the pumpNo attribute of a MudPumps/MudPump element within the same parent DayTour.

Child Elements

Name	Content	Use	Size	Description / Constraints
LinerSize	xs:decimal	required	8.3	The inside diameter of the pump liner used to calculate displacement.
HoursRun	xsd:decimal	optional	4.2	The total number of hours of pump operation rounded to nearest 15 minutes.
StrokesPerMinute	xs:nonNegativeInteger	required	3.0	The pump's strokes per minute while on the hole.

6.8.2.1.1 CirculationPump/LinerSize Element

The `LinerSize` element records the inside diameter of the pump liner used to calculate displacement.
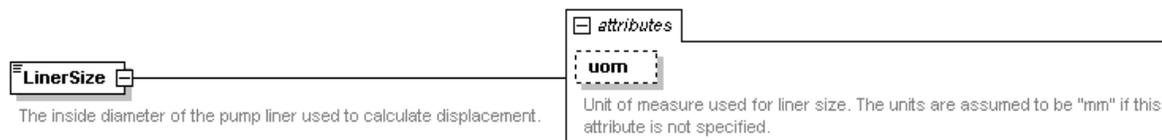
Attributes

Name	Type	Use	Size	Description / Constraints
uom	pick list	optional		Unit of measure used for liner size. The units are assumed to be "mm" if this attribute is not specified.

6.8.3 CirculationPressure/Remarks Element

The `Remarks` element is an optional element that allows general text associated with the circulation pressure.

Child Elements

Name	Content	Use	Size	Description / Constraints
Remark	ets:textValue	1 or more	1000	The text of a remark or comment. The contents represents the complete text of the comments entered at one particular time White space and new lines are preserved. The order of these elements corresponds to the order in which comments were entered.

6.9 Tour/ReducedPumpSpeeds Element

The `ReducedPumpSpeeds` element is an optional element that records details of reduced pump speeds.
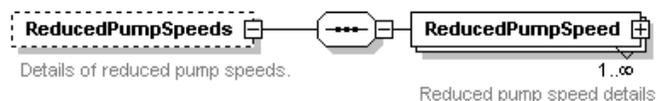
Child Elements

Name	Content	Use	Description / Constraints
ReducedPumpSpeed	elements	1 or more	Reduced pump speed details. The standard does not enforce any specific ordering

			to the instances of these elements.

6.9.1 ReducedPumpSpeeds/ReducedPumpSpeed Element

The `ReducedPumpSpeed` element is a recurring element within the
`ReducedPumpSpeeds` element.
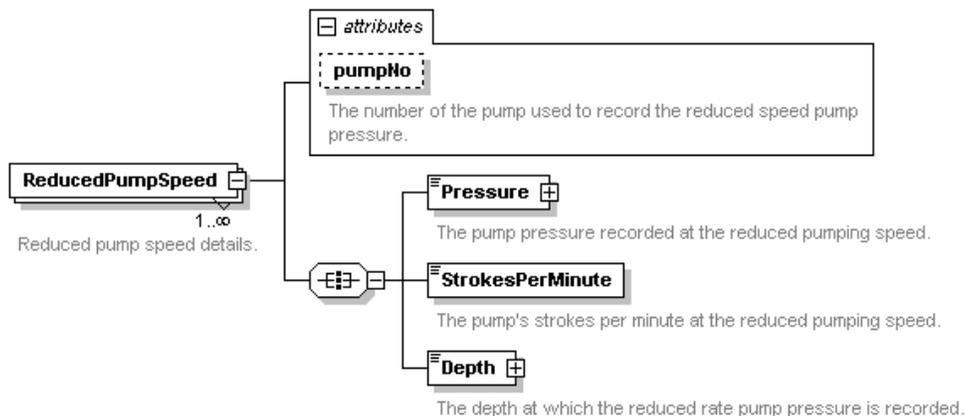
Each instance of the `ReducedPumpSpeed` element records details of a reduced pump
speed for a tour. The standard does not enforce any specific ordering to the instances
of these elements but they would typically be in the order in which they were recorded.

Attributes

Name	Type	Use	Size	Description / Constraints
pumpNo	xsd:positiveInteger	optional	3.0	The number of the pump used to record the reduced speed pump pressure. The value must reference a mud pump. That is, it must have the same value as the `pumpNo` attribute of a `MudPumps/MudPump` element within the same parent `DayTour`.

Child Elements

Name	Content	Use	Size	Description / Constraints
Pressure	xsd:nonNegativeInteger	required	6.0	The pump pressure recorded at a reduced pumping speed.
StrokesPerMinute	xsd:nonNegativeInteger	required	3.0	The pump's strokes per minute at the reduced pumping speed.
Depth	xsd:decimal	required	7.2	The depth at which the reduced rate pump pressure is recorded.

6.9.1.1 ReducedPumpSpeed/Pressure Element

The `Pressure` element records the pump pressure recorded at a reduced pumping
speed.
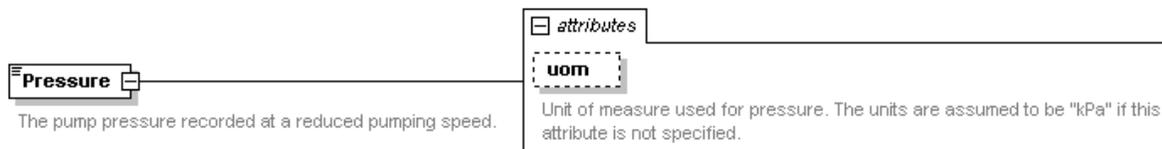
The pump pressure recorded at a reduced pumping speed.

Attributes

Name	Type	Use	Size	Description / Constraints
uom	pick list: Pressure Units	optional		Unit of measure used for pressure. The units are assumed to be "kPa" if this attribute is not specified.

6.9.1.2 ReducedPumpSpeed/Depth Element

The `Depth` element records the depth at which the reduced rate pump pressure is recorded.

The depth at which the reduced rate pump pressure is recorded.
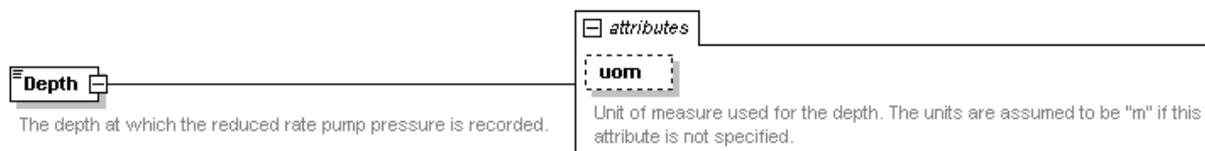
Attributes

Name	Type	Use	Size	Description / Constraints
uom	pick list: Length Units	optional		Unit of measure used for the depth. The units are assumed to be "m" if this attribute is not specified.

6.10 Tour/Boilers Element

The `Boilers` element is an optional element that records details on the boilers used during the tour.
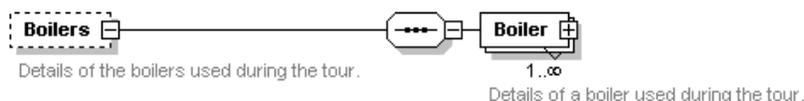
Child Elements

Name	Content	Use	Description / Constraints
Boiler	elements	1 or more	Details of a boiler used during the tour. The standard does not enforce any specific ordering to the instances of these elements.

6.10.1 Boilers/Boiler Element

The `Boiler` element is a recurring element within the `Boilers` element.

Each instance of the `Boiler` element contains all the details of a boiler used during the tour. The standard does not enforce any specific ordering to the instances of these elements but they would typically be in the order in which they were recorded.

Child Elements

Name	Content	Use	Size	Description / Constraints
BoilerNo	ets:nameValue	required	10	The boiler number used to uniquely identify this boiler. The value must reference a boiler. That is, it must have the same value as the `BoilerNo` element of an `Equipment/Boilers/Boiler` element within the same parent `DayTour`.
HoursRun	xsd:decimal	required	4.2	The total number of hours of boiler operation rounded to nearest 15 minutes.
BoilerPh	xsd:decimal	required	3.1	The relative acidity or alkalinity of the boiler water. Valid values are 1 to 15.
StackTemp	xsd:decimal	required	5.2	The boiler stack temperature measured during the tour.

6.10.1.1.1 Boiler/StackTemp Element

The `StackTemp` element records the boiler stack temperature measured during the tour.
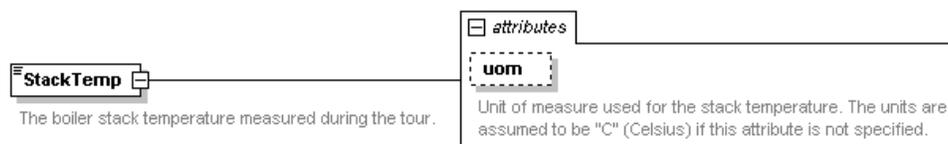
Attributes

Name	Type	Use	Size	Description / Constraints
uom	pick list: Temperature Units	optional		Unit of measure used for the stack temperature. The units are assumed to be "C" (Celsius) if this attribute is not specified.

6.11 Tour/DeviationSurveys Element

The `DeviationSurveys` element is an optional element that records details on deviation surveys.
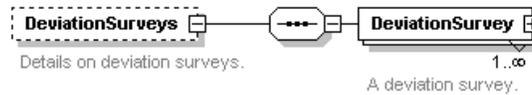
Child Elements

Name	Content	Use	Description / Constraints
DeviationSurvey	elements	1 or more	Details of a deviation survey. The standard does not enforce any specific ordering to the instances of these elements.

6.11.1   DeviationSurveys/DeviationSurvey Element

The `DeviationSurvey` element is a recurring element within the `DeviationSurveys` element.
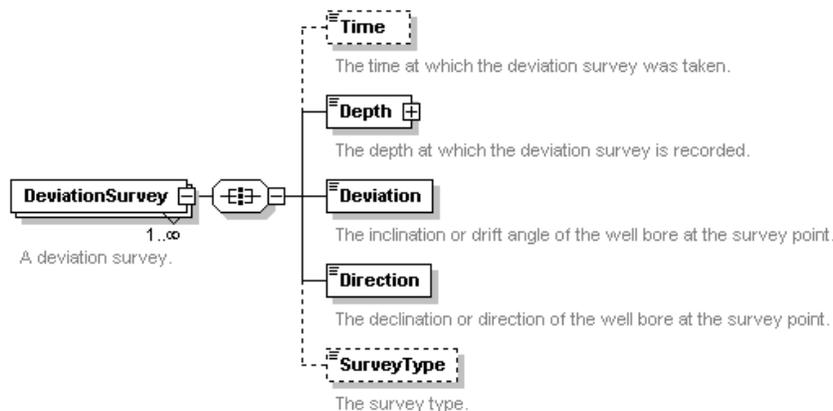
Each instance of the `DeviationSurvey` element contains all the details of a deviation survey. The standard does not enforce any specific ordering to the instances of these elements but they would typically be in the order in which they were recorded.

Child Elements

Name	Content	Use	Size	Description / Constraints
Time	ets:timeValue	optional		The time at which the deviation survey was taken.
Depth	xsd:decimal	required	7.2	The depth at which the deviation survey is recorded.
Deviation	xsd:decimal	required	5.2	The inclination or drift angle of the well bore at the survey point.
Direction	ets:nameValue	required	10	The declination or direction of the well bore at the survey point.
SurveyType	pick list: Deviation Survey Type	optional		The survey type.

6.11.1.1   DeviationSurvey/Depth Element

The `Depth` element records the depth at which a deviation survey is recorded.
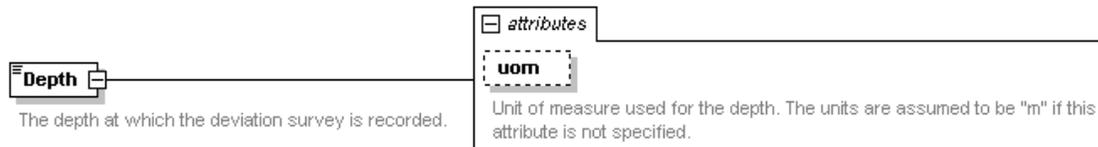
Attributes

Name	Type	Use	Size	Description / Constraints
uom	pick list: Length Units	optional		Unit of measure used for the depth. The units are assumed to be "m" if this attribute is not specified.

6.12 Tour/TimeLogs Element

The `TimeLogs` element is an optional element that records the time log of activities.
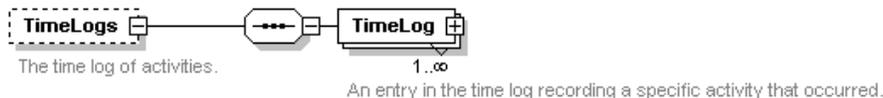
Child Elements

Name	Content	Use	Description / Constraints
TimeLog	elements	1 or more	An entry in the time log recording a specific activity that occurred. The instances of these elements are in the order of which the activities occurred.

6.12.1   TimeLogs/TimeLog Element

The `TimeLog` element is a recurring element within the `TimeLogs` element.
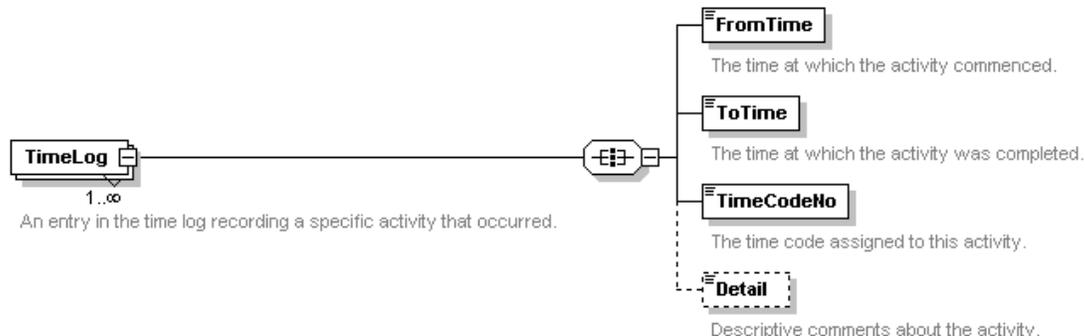
Each instance of the `TimeLog` element corresponds to an entry in the time log recording a specific activity that occurred. The instances of these elements are in the order of which the activities occurred. As such, the `FromTime` value in an instance of

the `TimeLog` element must be greater than or equal to the value of the preceding instance's `FromTime` value within a `TimeLogs` element.

Child Elements

Name	Content	Use	Size	Description / Constraints
FromTime	ets:dateTimeValue	required		The time at which the activity commenced. The value must be within the parent DayTour's 24-hour day.
ToTime	ets:dateTimeValue	required		The time at which the activity was completed. The value must be within the parent DayTour's 24-hour day.
TimeCodeNo	pick list: Time Code	required		The time code assigned to this activity.
Detail	ets:textValue	optional	4000	Descriptive comments about the activity.

6.13 Tour/TimeLogNotes Element

The `TimeLogNotes` element is an optional element that records notes on the time log.
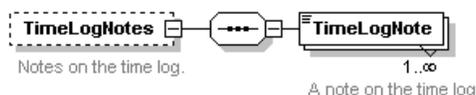
Child Elements

Name	Content	Use	Size	Description / Constraints
TimeLogNote	ets:textValue	1 or more	1000	A note on the time log. The content represents a complete line of text. White space is preserved. The order of these elements corresponds to the order in which lines of text were entered.

6.14 Tour/TourPayroll Element

The `TourPayroll` element records payroll-specific details for the tour.
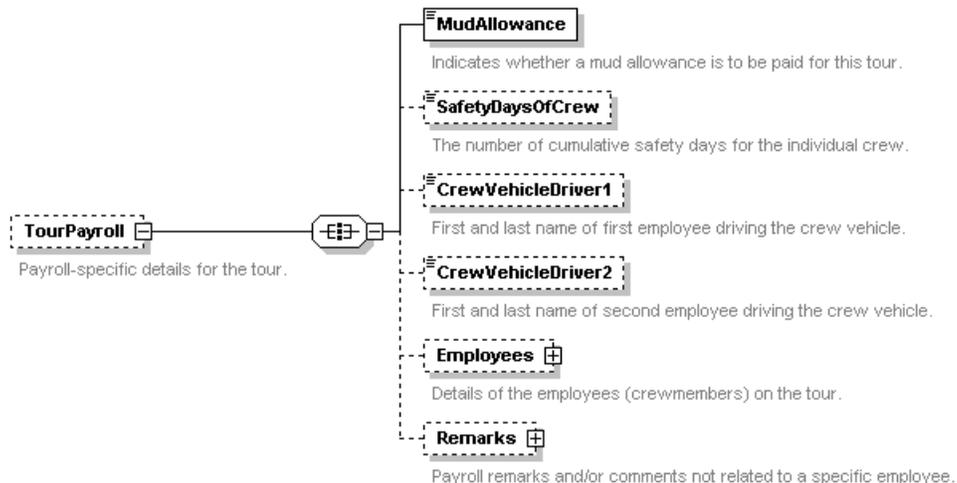
Child Elements

Name	Content	Use	Size	Description / Constraints
MudAllowance	xsd:boolean	required		Indicates whether a mud allowance is to be paid for this tour.
SafetyDaysOfCrew	xsd:nonNegativeInteger	optional	4.0	The number of cumulative safety days for the individual crew.
CrewVehicleDriver1	ets:nameValue	optional	50	First and last name of first employee driving the crew vehicle. This element is retained for compatibility with previous ETS versions. The Employee/IsDriver element should be used to indicate vehicle drivers.
CrewVehicleDriver2	ets:nameValue	optional	50	First and last name of second employee driving the crew vehicle. This element is retained for compatibility with previous ETS versions. The Employee/IsDriver element should be used to indicate vehicle drivers.
Employees	elements	optional		Details of the employees (crewmembers) on the tour.
Remarks	elements	optional		Payroll remarks and/or comments not related to a specific employee.

6.14.1   TourPayroll/Employees Element

The Employees element records the details of the employees (crewmembers) on the tour.

Details of the employees (crewmembers) on the tour.

Details of an employee (crewmember) on the tour.
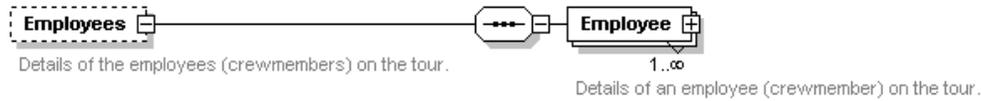
Child Elements

Name	Content	Use	Description / Constraints
Employee	elements	1 or more	Details of an employee (crewmember) on the tour.
			The standard does not enforce any specific ordering to the instances of these elements.

6.14.1.1   Employees/Employee Element

The Employee element is a recurring element within the Employees element.
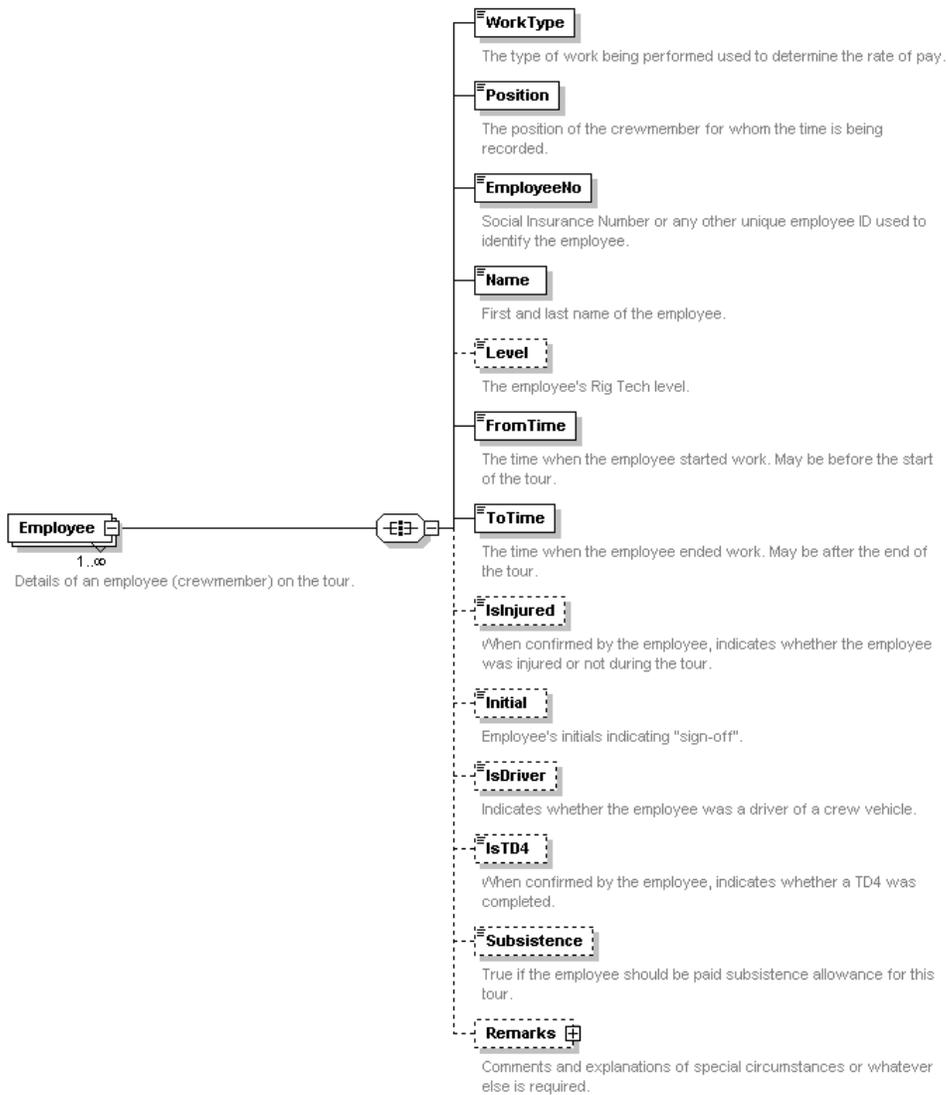
Each instance of the Employee element contains all the details of an individual employee working during the tour. The standard does not enforce any specific ordering

to the instances of these elements but they would typically be in the order in which they were recorded.

Child Elements

Name	Content	Use	Size	Description / Constraints
WorkType	pick list: Work Type	required		The type of work being performed used to determine the rate of pay.
Position	ets:nameValue	required	30	The position of the crewmember for whom the time is being recorded. This is a value from the Employee Position pick list.
EmployeeNo	ets:idValue	required	11	Social Insurance Number or any other unique employee ID used to identify the employee.
Name	ets:nameValue	required	50	First and last name of the employee.
Level	pick list: Rig Tech Level	optional		The employee's Rig Tech level.
FromTime	ets:dateTimeValue	required		The time when the employee started work. May be before the start of the tour but must be within the parent DayTour's 24-hour day.
ToTime	ets:dateTimeValue	required		The time when the employee ended work. May be after the end of the tour but must be within the parent DayTour's 24-hour day.
IsInjured	xsd:boolean	optional		When confirmed by the employee, indicates whether the employee was injured or not during the tour. The lack of this element indicates that the employee did not confirm an injury or no injury.
Initial	ets:nameValue	optional	3	Employee's initials indicating "sign-off".
IsDriver	xsd:boolean	optional		Indicates whether the employee was a driver of a crew vehicle.
IsTD4	xsd:boolean	optional		When confirmed by the employee, indicates whether a TD4 was completed. The lack of this element indicates that the employee did not confirm that a TD4 was completed or not.
Subsistence	xsd:boolean	optional		True if the employee should be paid subsistence allowance for this tour. This element is retained for compatibility with previous ETS versions.
Remarks	elements	optional		Comments and explanations of special circumstances or whatever else is required.

6.14.1.1.1   Employee/Remarks Element

The `Remarks` element is an optional element that allows comments and explanations of special circumstances to be associated with an employee.

Child Elements

Name	Content	Use	Size	Description / Constraints
Remark	ets:textValue	1 or more	1000	The text of a remark or comment. The contents represents the complete text of the comments entered at one particular time White space and new lines are preserved. The order of these elements corresponds to the order in which comments were entered.

6.14.2   TourPayroll/Remarks Element

The `Remarks` element records miscellaneous payroll-related comments or statistics not related to a specific employee.

Child Elements

Name	Content	Use	Size	Description / Constraints
Remark	ets:textValue	1 or more	1000	The text of a remark or comment. The contents represents the complete text of the comments entered at one particular time White space and new lines are preserved. The order of these elements corresponds to the order in which comments were entered.

6.15 Tour/WellEvents Element

The `WellEvents` element is an optional element that records key well events.
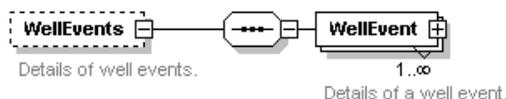
Child Elements

Name	Content	Use	Description / Constraints
WellEvent	elements	1 or more	Details of a specific well event. The instances of these elements are in the order of which the events occurred.

6.15.1   WellEvents/WellEvent Element

The `WellEvent` element is a recurring element within the `WellEvents` element.
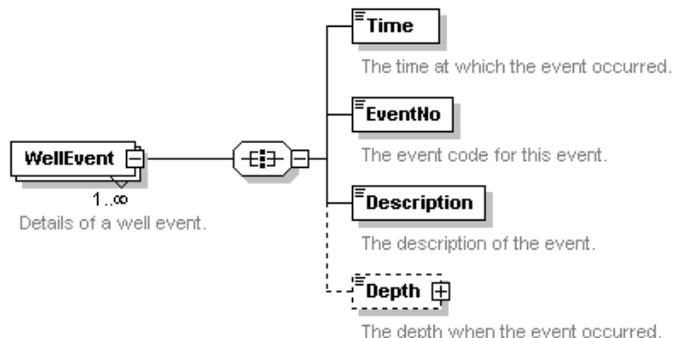
Each instance of the `WellEvent` element corresponds to a specific well event that occurred. The instances of these elements are in the order of which the events occurred. As such, the `Time` value in an instance of the `WellEvent` element must be greater than or equal to the value of the preceding instance's `Time` value.

Child Elements

Name	Content	Use	Size	Description / Constraints
Time	ets:timeValue	required		The time at which the event occurred.
EventNo	pick list: Event Code	required	50	The event code for this event. This is a value from the Event Code pick list.
Description	ets:textValue	required	255	The description of the event.
Depth	xsd:decimal	optional	7.2	The depth when the event occurred.

6.15.1.1   WellEvent/Depth Element

The `Depth` element records the depth when the event occurred.
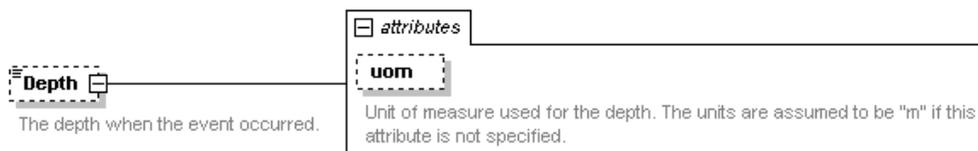
Attributes

Name	Type	Use	Size	Description / Constraints
uom	pick list:	optional		Unit of measure used for the depth. The units are

	Length Units			assumed to be "m" if this attribute is not specified.

6.16 Tour/Others Element

The `Others` element is an optional element that allows implementation-specific information for a tour to be included in the file.
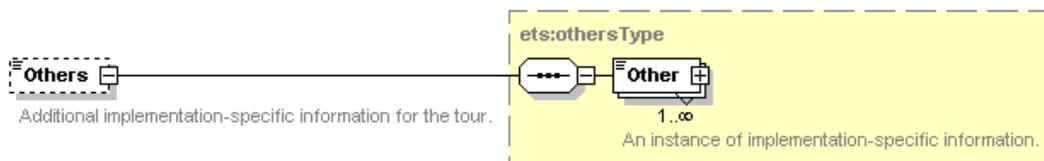
Child Elements

Name	Content	Use	Description / Constraints
Other	elements	1 or more	Additional implementation-specific information for the tour. The standard does not enforce any specific ordering to the instances of these elements.

6.16.1   Others/Other Element

The `Other` element is a recurring element within the `Others` element.

The standard does not enforce any specific ordering to the instances of the `Other` element although implementations may have a defined order to their specific elements.

Attributes

Name	Type	Use	Size	Description / Constraints
id	ets:idValue	required	30	Identifier used to reference this instance. The value must conform to the constraints imposed by the type. More than one element may have the same value for this attribute.

Child Elements

Name	Content	Use	Description / Constraints
any names from	mixed (text	0 or more	The text and XML elements storing implementation-

any namespace	and elements)		specific information.
			The standard does not enforce any specific ordering to the instances of these elements.
			There are no restrictions imposed on the contents.

APPENDIX A – PICK LIST VALUES

Camp Type

Value	Definition
"CATERED"	Catered camp
"NON-CATERED"	Camp is not catered
"NONE"	No camp

Casing Category

Value	Definition
"SURFACE"	Surface Casing
"INTERMEDIATE"	Intermediate Casing
"PRODUCTION"	Production Casing
"LINER"	Liner
"TUBING"	Tubing
"CONDUCTOR"	Conductor

Contractor Check Code

Value	Definition
"1 - RIG SITE HEALTH AND SAFETY MEETING"	Rig Site Health and Safety Meeting (one/crew/month)
"2 - CAODC RIG SAFETY INSPECTION CHECKLIST"	CAODC Rig Safety Inspection Checklist (one/rig/month)
"3 - MAST INSPECTION BEFORE RAISING OR LOWERING"	Mast Inspection Before Raising or Lowering
"4 - CROWN SAVER CHECKED"	Crown Saver Checked
"5 - MOTOR KILLS CHECKED"	Motor Kills Checked

Deviation Survey Type

Value	Definition
"WIRELINE"	Wireline Survey
"DIRECTIONAL"	Directional Survey
"TELEDRIFT"	Teledrift Survey

Direction Type

Value	Definition
"N"	North
"E"	East
"W"	West
"S"	South
"NE"	Northeast
"NW"	Northwest
"SE"	Southeast
"SW"	Southwest

Drilling Activity Type

Value	Definition
"DRILL"	Drilling
"REAM"	Reaming
"CORE"	Coring

Drill Pipe Category

Value	Definition
"DP"	Standard Drill Pipe
"DC"	Drill Collar
"HW"	Hevi-Wate

Employee Position

Value
"RIG MANAGER"
"DRILLER"
"DERRICKMAN"
"MOTORMAN"
"FLOORMAN"
"LEASEMAN"
"RIG WATCH"
other Additional values may be defined by each implementation.

Equipment Provider Type

Value	Definition
"CONTRACTOR"	Contractor
"OPERATOR"	Operator

Equipment Expense Of Type

Value	Definition
"CONTRACTOR"	Contractor
"OPERATOR"	Operator
"UNKNOWN"	Not Known at time of entry.

Event Code

Value	Definition
"SPUD"	Spud
"START DRILLING"	Drilling operations on the well have started
"DRILL MOUSEHOLE"	
"DRILL RATHOLE"	
"PLUG DOWN - SURFACE"	

"DRILL OUT - SURFACE"	
"REACHED TD"	Reached Total Depth
"FIRST LOG TO BOTTOM"	
"RIG RELEASE"	Rig Release
"PAUSE WELL"	Operations on the well are paused (temporarily suspended)
"RESUME WELL"	Operations on the well have resumed
"END WELL"	Operations on the well are complete
"JSA REVIEW"	Job Safety Analysis Review
"LOCKOUTS"	Lockouts in place
"NEW JOB ORIENTATION"	New Job Orientation
other	Additional values may be defined by each implementation.

IADC Cutting Structure Code

Value	Definition for Steel Tooth Bits	Definition for Insert Bits	Definition for Fixed Cutter Bits
"0"	No loss of tooth height	No lost, worn and/or broken inserts	No lost, worn and/or broken cutting structure
"1"			
"2"			
"3"			
"4"			
"5"			
"6"			
"7"			
"8"	Total loss of tooth height	All inserts lost, worn and/or broken	All of cutting structure lost, worn and/or broken

IADC Bearing/Seals Code

Value	Definition for Nonsealed Bearings
"0"	No life used
"1"	
"2"	
"3"	
"4"	
"5"	
"6"	
"7"	
"8"	All life used (no bearing life remaining)

Value	Definition for Sealed Bearings
"E"	Seals defective
"F"	Seals failed
"N"	Not able to grade
"X"	Fixed cutter bit (bearingless)

IADC Dull Characteristics Code

Value	Definition
"BC"	Broken Cone (show cone numbers under location)
"BT"	Broken teeth/cutters
"BU"	Balled Up
"CC"	Cracked Cone (show cone numbers under location)
"CD"	Cone Dragged (show cone numbers under location)

Value	Definition
"LN"	Lost Nozzle
"LT"	Lost Teeth/Cutters
"NO"	No Major/Other Dull Characteristics
"OC"	Off-Center Wear
"PB"	Pinched Bit

"CI"	Cone Interference		"PN"	Plugged Nozzle
"CR"	Cored		"RG"	Rounded Gage
"CT"	Chipped Teeth/Cutters		"RO"	Ring Out
"ER"	Erosion		"SD"	Shirt Tail Damage
"FC"	Flat Crested Wear		"SS"	Self-Sharpening Wear
"HC"	Heat Checking		"TR"	Tracking
"JC"	Junk Damage		"WO"	Wash Out on Bit
"LC"	Lost Cone (show cone numbers under location)		"WT"	Worn Teeth/Cutters

IADC Reason Pulled Code

Value	Definition		Value	Description
"BHA"	Change Bottom Hole Assembly		"LIH"	Left in Hole
"CD"	Condition Mud		"LOG"	Run Logs
"CP"	Core Point		"PP"	Pump Pressure
"DMF"	Downhole Motor Failure		"PR"	Penetration Rate
"DP"	Drill Plug		"RIG"	Rig Repair
"DSF"	Downhole String Failure		"TD"	Total Depth/Casing Depth
"DST"	Drill Stem Test		"TO"	Torque
"DTF"	Downhole Tool Failure		"TW"	Twist Off
"FM"	Formation Change		"WC"	Weather Conditions
"HP"	Hole Problems		"WOS"	Washout Drill String
"HR"	Hours on Bit			

IADC Location Code

Value	Definition for Roller Cone		Value	Definition for Fixed Cutter
"A"	All rows		"A"	All areas
"G"	Gauge row		"C"	Cone
"H"	Heal row		"G"	Gauge
"M"	Middle row		"N"	Nose
"N"	Nose row		"S"	Shoulder
"1"	Cone #1		"T"	Taper
"2"	Cone #2			
"3"	Cone #3			

Jurisdiction

Value	Definition		Value	Definition
"BC"	British Columbia		"NS"	Nova Scotia
"AB"	Alberta		"PE"	Prince Edward Island
"SK"	Saskatchewan		"NL"	Newfoundland and Labrador
"MB"	Manitoba		"NT"	Northwest Territories
"ON"	Ontario		"YT"	Yukon
"QC"	Quebec		"NU"	Nunavut
"NB"	New Brunswick		"CA"	Canada (federal jurisdiction)

Location Type

Value	Definition
"DLS"	Dominion Land Survey (used in Alberta, Saskatchewan, Manitoba, NE BC)
"NTS"	National Topographic System (used in most of BC)
"LAT-LONG"	Latitude and Longitude (used anywhere)
"CLSS"	Canada Lands Survey System (used in Yukon, NWT, Nunavut)
"UTM"	Universal Transverse Mercator (used anywhere)

Operator Check Code

Value	Definition
"1 - DAILY WALK AROUND INSPECTION"	Daily Walk Around Inspection
"2 - DETAILED WEEKLY INSPECTION"	Detailed Inspection – Weekly (using checklist)
"3 - H2S SIGNS POSTED"	H2S Signs Posted (if required)
"4 - WELL LICENSE AND STICK DIAGRAM POSTED"	Well License & Stick Diagram Posted
"5 - FLARE LINES STAKED"	Flare Lines Staked
"6 - BOP DRILLS PERFORMED"	BOP Drills Performed
"7 - VISUALLY INSPECT BOP'S"	Visually inspect BOP's – Flarelines and Degasser Lines

Pump Pressure Type

Value	Definition
"SINGLE"	Single Pump
"COMBINED"	Pumps Combined in Series
"PARALLEL"	Pumps Combined in Parallel

Pump Style Type

Value	Definition
"DUPLEX"	Duplex Pump
"TRIPLEX"	Triplex Pump

Rig Tech Level

Value	Definition
"RIG TECH 1"	Rig Tech Level 1
"RIG TECH 2"	Rig Tech Level 2
"RIG TECH 3"	Rig Tech Level 3

Road Condition Type

Value	Definition
"GOOD"	Roads are in good condition
"FAIR"	Roads are in fair condition
"POOR"	Roads are in poor condition
"VERY POOR"	Roads are very poor or impassible

Time Code

Value	Definition
"1"	Rig up
"1A"	Move rig
"1B"	Rig up top drive
"1C"	Spot rig/loads/buildings
"1D"	Level rig
"2"	Drill
"2A"	Drill mousehole
"2B"	Drill rathole
"2C"	Drill cement/drill out cement/drill float&shoe
"3"	Reaming
"3A"	Ream & clean
"3B"	Back reaming
"3C"	Ream – open hole
"4"	Coring
"4A"	Handle core brls
"5"	Condition mud & circulate
"5A"	Build volume
"5B"	Displace to oil base
"5C"	Displace to water base
"5D"	Circulate and Condition
"5E"	C&C due to lost circulation
"5F"	Change out mud system
"5G"	Blow/unload hole
"5H"	Displace to completion fluid
"5I"	Clean out mud system
"5J"	Stab in cementation
"5K"	Clean cement stinger
"6"	Trips
"6A"	Trip in hole
"6B"	Trip out of hole
"6C"	Pick up BHA
"6D"	Lay down BHA
"6E"	Pick up drill pipe
"6F"	Lay down drill pipe
"6G"	Pick up 3rd party tools
"6H"	Lay down 3rd party tools
"6J"	Inspect BHA
"6M"	Wiper Trip
"7"	Rig Service
"7A"	Clean - floor/pump/screens
"7B"	Change pump head
"7C"	Change screens
"8"	Rig Repair
"8A"	Downtime - Instrumentation
"8B"	Downtime - Top drive
"8C"	Downtime - Mud pump
"8D"	Downtime - Engines
"8E"	Downtime - Scr/Electrical
"8F"	Downtime - Drawworks
"8G"	Downtime - Mud system

"8H"	Downtime - BOP/choke
"8I"	Downtime - Hoisting/lifting
"9"	Cut off Drill Line
"9A"	Slip/Cut drilling line
"9B"	Change drilling line
"10"	Deviation survey
"10A"	Wireline Surveys - Single shot surveys
"10B"	Wireline Surveys - Multi-shot surveys
"11"	Wireline logs
"11A"	Logging - Open hole logs
"11B"	Logging - Cased hole logs
"11C"	Logging - Coiled tubing logs
"11D"	Logging - Integrity logs
"12"	Run casing & cementing
"12A"	Rig up/down to run casing
"12B"	Run casing
"12C"	Cementing
"12D"	Top cement jobs
"12E"	Pressure test CSG/shoe
"12F"	Cement plugs
"12G"	Cement for lost circulation
"12H"	Pulling casing
"13"	Wait on cement
"14"	Nipple up BOP
"14A"	Nipple up BOPs
"14B"	Nipple down BOPs
"14C"	Nipple up/down diverter system
"14D"	Change rams
"14E"	Install wellhead/tree
"15"	Test BOP
"15A"	Pressure test BOPs
"15B"	Function test BOPs
"15C"	Test diverter
"15D"	Test wellhead/tree
"16"	Drill stem test
"16A"	Handle test tools
"16B"	Trip in/out test tools
"16C"	Test formation
"17"	Plug back
"18"	Squeeze cement
"19"	Fishing
"19A"	Jarring
"19B"	Handle fishing tools
"19C"	Wait on fishing tools
"19D"	Trip fishing tools
"19E"	Wireline work
"20"	Directional work
"20A"	Directional surveys
"20B"	Controlled drilling
"20C"	Tool orientation
"20D"	Handle directional tools
"20E"	Wait on directional
"21"	Safety meeting

"21A"	Drills/BOP, etc.
"21B"	JSA (Job Safety Analysis)
"21C"	On job training
"21D"	Pre-job safety
"21E"	QMS/RMS
"21F"	Safety inspection
"21G"	Safety stand-down
"21H"	Third Party Orientation
"22"	Tear down
"22A"	Move rig
"22B"	Rig down top drive
"22C"	Load rig
"23"	Waiting on
"23A"	W/O Cementer
"23B"	W/O Daylight
"23C"	W/O Lease/Location
"23D"	W/O Loggers
"23E"	W/O Orders
"23F"	W/O Third Party Tools
"23G"	W/O Third Party Personnel
"23H"	W/O Tongs
"23I"	W/O Trucks
"23J"	W/O Water
"23K"	W/O Weather
"23L"	W/O Welder
"24"	Rig Watch
"25"	Other

Tubular Type

Value	Definition
"DP"	Drill Pipe
"DC"	Drill Collar

Weather Type

Value	Value
"CLEAR"	"HAIL"
"PARTLY CLOUDY"	"FOG"
"OVERCAST"	"FROST"
"BLOWING DUST"	"SLEET"
"HAZE"	"ICE PELLETS"
"SMOKE"	"BLOWING SNOW"
"DRIZZLE / MIST"	"LIGHT SNOW"
"SHOWER"	"SNOW"
"RAIN"	"BLIZZARD"
"THUNDERSTORM"	

Well Type

Value	Definition
"VERT"	Vertical Well
"DIR"	Directional Well
"HORIZ"	Horizontal Well

Work Type

Value	Definition
"REGULAR"	Regular work, use regular pay rate
"MODIFIED"	Use a modified pay rate
"TRAVEL"	Traveling, use travel pay rate
"REPAIR"	Repair work, use repair pay rate
"TRAINING"	Training, use training pay rate
"RELIEF"	Relief Rig Manager, use half day rate
"RIG WATCH"	Rig Watch
"DIRECTIONAL SERVICES"	Directional Services

Wind Strength Type

Value
"CALM"
"UP TO 19 KM/H"
"UP TO 29 KM/H"
"UP TO 39 KM/H"
"UP TO 50 KM/H"
"UP TO 62 KM/H"
"UP TO 75 KM/H"
"UP TO 87 KM/H"
"UP TO 102 KM/H"
"ABOVE 102 KM/H"

Units of Measure

Density Units

Unit	Description
"kg/m3"	kilograms per cubic meter
"lb/cuft"	pounds per cubic foot

Diameter Units

Unit	Description
"mm"	millimeters
"cm"	centimeters
"in"	inches

Elevation Units

Unit	Description
"m"	meters
"ft"	feet

Fuel Units

Unit	Description
"l"	liters
"in"	inches
"m"	meters

Length Units

Unit	Description
"mm"	millimeters
"cm"	centimeters
"m"	meters
"in"	inches
"ft"	feet

Linear Mass Units

Unit	Description
"kg/m"	kilograms per meter
"lb/ft"	pounds per foot

Pressure Units

Unit	Description
"kPa"	kiloPascals
"Pa"	Pascals
"psi"	pounds per square inch
"bar"	bars
"atm"	atmospheres

Temperature Units

Unit	Description
"C"	Celsius
"F"	Fahrenheit

Torque Units

Unit	Description
"Nm"	Newton meters
"lbft"	pound-feet
"amps"	amperes

Usage Units

Unit	Description
"hours"	Hours
"days"	Days
"weeks"	Weeks
"months"	Months

Viscosity Units

Unit	Description
"s/l"	seconds per liter
"s/gal"	seconds per gallon

Volume Units

Unit	Description
"cm3"	cubic centimeters
"m3"	cubic meters
"l"	liters

Weight Units

Unit	Description
"1000 daN"	1000 decaNewtons
"lbf"	pounds force

APPENDIX B – ADDITIONAL CONSTRAINTS

The data recorded in an ETS file have additional constraints than those documented in Sections 3 to 6. These constraints are listed below.

ETS/fileDateTime

The date cannot be in the future.

WellTour/SurfaceLocation

The surface location must be a location in a known format. Specifically, it must conform to one of the following formats.

DLS (Dominion Land Survey)

Format:

> [LSD]-[Section]-[Township]-[Range]W[Meridian]

Where:

> [*LSD*] is a number from 1 to 16 followed by optional letter a, b, c or d
> [*Section*] is a number from 1 to 36
> [*Township*] is a number from 1 to 130
> [*Range*] is a number from 1 to 34 optionally followed by the space character
> [*Meridian*] is a number from 1 to 6 optionally followed by the letter M

Example:

> 10-33-058-21 W5

NTS (National Topographic System)

Format:

> [*Quarter*]–[*Unit*]–[*Block*]/[*Map*]–[*Subdivision*]–[*Sheet*]

Where:

> [*Quarter*] is the lowercase letter a, b, c or d

[*Unit*] is a number from 1 to 100
[*Block*] is an uppercase letter from `A` to `L`
[*Map*] is a number from 1 to 100
[*Subdivision*] is an uppercase letter from `A` to `P`
[*Sheet*] is a number from 1 to 16

Example:

d-96-H/94-A-15

Latitude/Longitude

Format:

[*LatDegs*]`:`[*LatMins*]`:`[*LatSecs*][*NS*]`/`[*LongDegs*]`:`[*LongMins*]`:`[*LongSecs*][*EW*]

Where:

[*LatDegs*] is a zero-padded two-digit number from 00 to 90
[*LatMins*] is a zero-padded two-digit number from 00 to 59
[*LatSecs*] is a zero-padded two-digit two-decimal number from 00.00 to 59.99
[*NS*] is the uppercase letter `N` or `S`
[*LongDegs*] is a zero-padded three-digit number from 000 to 180
[*LongMins*] is a zero-padded two-digit number from 00 to 59
[*LongSecs*] is a zero-padded two-digit two-decimal number from 00.00 to 59.99
[*EW*] is the uppercase letter `E` or `W`

Example:

60:02:24.15N/117:29:32.00W

CLSS (Canada Lands Survey System)

Format:

[*Unit*]–[*Section*]–[*LatDegrees*]–[*LatMinutes*]–[*LongDegrees*]–[*LongMinutes*]

Where:

[*Unit*] is an uppercase letter from `A` to `P`
[*Section*] is a zero-padded two-digit number from 01 to 80
[*LatDegrees*] is a zero-padded two-digit number from 00 to 90
[*LatMinutes*] is a zero-padded two-digit number from 00 to 59
[*LongDegrees*] is a zero-padded three-digit number from 000 to 180
[*LongMinutes*] is a zero-padded two-digit number from 00 to 59

Example:

N-27-61-05-134-30

UTM (Universal Transverse Mercator)

Format:

[*LongitudeZone*] [*LatitudeZone*] [*Easting*] [*Northing*]

Where:

[*LongitudeZone*] is a number from 1 to 60
[*LatitudeZone*] is an uppercase letter from `A` to `Z`
[*Easting*] is a six-digit number from 167000 to 833000
[*Northing*] is a number from 0 to 9999999

Example:

11 U 700498 5656220

WellTour/SpudDateTime

The date cannot be in the future.

WellTour/RigReleaseDateTime

The date cannot be in the future.

WellTour/Changes/Change/At

The date cannot be in the future.

WellTour/Changes/Change/TourDate

The value must refer to a DayTour/Date within the same WellTour.

WellTour/Changes/Change/TourId

The value must refer to a Tour/tourId within the same WellTour.

DayTour/Date

The date cannot be in the future.

DayTour/Tubular/Casings/Casing/InsideDiameter

The value must be less than DayTour/Tubular/Casings/Casing/OutsideDiameter within the same Casing element.

DayTour/Tubular/Casings/Casing/KBToCasingBottom

The value must be greater than DayTour/Tubular/Casings/Casing/KBToCasingHead within the same Casing element.

DayTour/Tubular/DrillPipes/DrillPipe/InsideDiameter

The value must be less than DayTour/Tubular/DrillPipes/DrillPipe/OutsideDiameter within the same DrillPipe element.

DayTour/Tubular/DrillPipes/DrillPipe/ToolJointOutsideDiameter

The value must be greater than or equal to DayTour/Tubular/DrillPipes/DrillPipe/OutsideDiameter within the same DrillPipe element.

DayTour/Tubular/Coils/Coil/Thickness

The value must be less than DayTour/Tubular/Coils/Coil/OutsideDiameter within the same Coil element.

DayTour/Tubular/Coils/Coil/CumulativeCyclesCount

The value must be greater than or equal to DayTour/Tubular/Coils/Coil/CyclesTodayCount within the same Coil element.

DayTour/Tubular/Coils/Coil/SlipAndCut

The value must be less than or equal to DayTour/Tubular/Coils/Coil/OriginalLength within the same Coil element.

DayTour/Tubular/Coils/Coil/DimpleDate

The date cannot be in the future.

DayTour/Equipment/Boilers/Boiler/BoilerNo

The value must be unique within a DayTour element.

DayTour/Equipment/MudPumps/MudPump/pumpNo

The value must be unique within a DayTour element.

DayTour/Equipment/Bits/Bit/IADCCode1 and IADCCode4

The value of IADCCode1 or IADCCode4 may be a letter but not both.

DayTour/Equipment/Bits/Bit/DepthOut

The value must be greater than or equal to DayTour/Equipment/Bits/Bit/DepthIn within the same Bit element.

DayTour/Equipment/Bits/Bit/HoursRunToday

The value must be less than or equal to DayTour/Equipment/Bits/Bit/CumulativeHoursRun within the same Bit element.

DayTour/Equipment/Bits/Bit/EntryDate

The date cannot be in the future.

DayTour/Equipment/Bits/Bit/TourId

The value must refer to a Tour/tourId within the same DayTour.

Tour/tourId

The value must be unique within a DayTour element.

Tour/StartTime

If there is a preceding Tour element within a DayTour element, the value must be greater or equal to the preceding Tour's EndTime value.

Tour/EndTime

The value must be greater than Tour/StartTime within the same Tour element.

Tour/DrillingAssemblys/DrillingAssembly/BHAComponents/ BHAComponent/InsideDiameter

The value must be less than Tour/DrillingAssemblys/DrillingAssembly/BHAComponents/ BHAComponent/OutsideDiameter within the same BHAComponent element.

Tour/DrillRecords/DrillRecord/ToDepth

The value must be greater than Tour/DrillRecords/DrillRecord/FromDepth within the same DrillRecord element.

Tour/CirculationPressure/CirculationPumps/CirculationPump/pumpNo

The value must refer to a DayTour/Equipment/MudPumps/MudPump/pumpNo within the same DayTour element.

Tour/ReducedPumpSpeeds/ReducedPumpSpeed/pumpNo

The value must refer to a DayTour/Equipment/MudPumps/MudPump/pumpNo within the same DayTour element.

Tour/Boilers/Boiler/BoilerNo

The value must refer to a DayTour/Equipment/Boilers/Boiler/BoilerNo within the same DayTour element.

Tour/TimeLogs/TimeLog/FromTime

If there is a preceding TimeLog element within a TimeLogs element, the value must be greater than or equal to the preceding TimeLog's ToTime value. The value must also be greater than or equal to time 00:00 of the parent DayTour element's Date value.

Tour/TimeLogs/TimeLog/ToTime

The value must be greater than TimeLog/FromTime within the same TimeLog element. The value must also be less than or equal to time 24:00 of the parent DayTour element's Date value.

Tour/TourPayroll/Employees/Employee/FromTime

The value must be greater than or equal to time 00:00 of the parent DayTour element's Date value.

Tour/TourPayroll/Employees/Employee/ToTime

The value must be greater than Tour/TourPayroll/Employees/Employee/FromTime within the Employee element. The value must also be less than or equal to time 24:00 of the parent DayTour element's Date value.

Tour/WellEvents/WellEvent/Time

If there is a preceding WellEvent element within a WellEvents element, the value must be greater than or equal to the preceding WellEvent's Time value.

Signature Rules

Signing rules are based on roles as follows:

- Signing order is Employee → Driller → Operator → Rig Manager.

- Un-signing order is Rig Manager → Operator → Driller → Employee.

- An Employee signature can only be signed by the employee themselves.

- An Employee signature is not required on any tour sheet.

- An Employee signature/initial locks all data within the Employee element they are signing.

- A Driller is not allowed to sign/un-sign for any signature other than a Driller signature.

- A Driller signature locks all data within the Tour element they are signing.

- An Operator is not allowed to sign/un-sign for any signature other than an Operator signature.

- An Operator signature locks all data other than the ContractorRep and ContractorSigned elements.

- An Operator signature is optional.

- A Rig Manager is allowed to sign as a Rig Manager or as a Driller. When acting as a Driller, the Rig Manager's signature will appear in the DrillerSignature element.

- A Rig Manager is allowed to un-sign for either a Driller or Rig Manager but is NOT allowed to un-sign for an Operator or for an Employee.

- A Rig Manager signature locks all data including the Operator signature and allows the tour sheet to be sent to the vendor's central data storage. If there is no Operator signature, then the Rig Manager signature locks out any further changes to the entire tour sheet and allows the tour sheet to be sent to the vendor's central data storage.

- No signatures are required prior to SPUD (or SPUD date not set) or after rig release. If the Rig Manager chooses to sign the tour sheet, then the normal signing rules apply (Employee → Driller → Operator → Rig Manager).

- In order to change data, multiple signatures may be required in order to unlock the data.

Edit Permissions

Editing is restricted by role as follows:

Employee

An Employee can sign their own Employee element.

Driller

A Driller is allowed to edit any unlocked values.

Operator

An Operator is able to change the following information unless locked by the Rig Manager:

Information	ETS Element(s)
Sign off indicator	DayTour/OperatorSigned
Their name	DayTour/OperatorRep
Operator Daily checks	DayTour/OperatorChecks/OperatorCheck[]/CheckNo DayTour/OperatorChecks/OperatorCheck[]/OperatorInitial
Bits	DayTour/Equipment/Bits/*
Casings	DayTour/Tubular/Casings/*
Mud Record, Mud Materials and Mud Samples	Tour/MudRecord/*
Time Log Details	Tour/TimeLogs/TimeLog[]/Detail
Time Log Notes	Tour/TimeLogNotes/*

Rig Manager

A Rig Manager is allowed to edit any values not locked by an Operator, Driller or Employee.

APPENDIX C – VERSION 2.2 TO 3.0 CHANGE LOG

This appendix provides the details of how ETS Version 2.2 (previous version) was changed to become ETS Version 3.0.

Existing Information

In general, the following changes have been made:

- All the RECORD_ID, SEQ_ID and TOUR_ID fields used to relate records have been deleted. They are no longer needed as a nested hierarchy is used to provide the same capability.

- All retained fields have been renamed to follow the ETS Version 3.0 naming conventions.

The following tables detail changes made to each ETS Version 2.2 record to obtain ETS Version 3.0.

FHS000 Record – FILE HEADER INFORMATION

V2.2 Record/ Field	V3.0 Element/ Attribute	Change Type	Change Details	Reason and Related Issues
`FHS_FILE_DATE` `FHS_FILE_TIME`	`ETS/ fileDateTime`	Restructured	Separate date and time fields combined into one field.	Changed to conform to established design principles.
`FHS_CONTRACTOR_ID`	`WellTour/Contractor/ ContractorId`	Restructured	Field renamed. Moved to consolidate contractor information associated with a well.	Allows the flexibility to have multiple independent wells within one ETS file.
`FHS000/ FHS_RIG_ID`	`WellTour/Rig/RigId`	Restructured	Field renamed. Moved to consolidate rig information associated with a well.	Allows the flexibility to have multiple independent wells within one ETS file.
	`DayTour/Revision`	Added	Field added.	Added to explicitly track revisions and allow generation of sheet serial numbers.
`FHS000/ FHS_SHEET_NO`	`DayTour/SheetNo`	Restructured	Field renamed. Moved to consolidate tour information.	Allows the flexibility to have multiple independent tour sheets within one ETS file.
`FHS000/`		Deleted	Field deleted.	Deleted calculated field to

V2.2 Record/ Field	V3.0 Element/ Attribute	Change Type	Change Details	Reason and Related Issues
FHS_SHEET_SER_NUM				conform to established design principles. With the addition of the DayTour/Revision element, serial numbers can be generated.
FHS000/ FHS_NO_OF_TOURS		Deleted	Field deleted.	The XML structure no longer requires such a value.
FHS000/ FHS_ETSFS_VERSION	ETS/ etsVersion	Renamed	Field renamed.	Changed to conform to the established naming conventions. Required to have the value of "3.0" for this version.
FHS000/ FHS_APPLICATION	ETS/ application	Renamed	Field renamed. Field now mandatory.	Changed to conform to the established naming conventions.
FHS000/ FHS_CREATED_BY	ETS/ createdBy	Renamed	Field renamed.	Changed to conform to the established naming conventions.
FHS000/ FHS_REMARK	ETS/Remarks	Restructured	Field renamed. Moved to a dedicated element.	A dedicated Remarks element allows for more flexibility and better consistency with other comments within the ETS data.
FHS000/ FHS_NO_OF_RECORDS		Deleted	Field deleted.	The XML structure no longer requires such a value.
FHS000/ FHS_ETS_VER	ETS/ applicationRelease	Renamed	Field renamed.	Changed to conform to the established naming conventions.

CON000 Record – TOUR CONFIGURATION RECORD

V2.2 Record/ Field	V3.0 Element/ Attribute	Change Type	Change Details	Reason and Related Issues
CON000/ CON_TOUR_ID	Tour/ tourId	Restructured	Field renamed.	Defined as an attribute as the tour id is not core information and is only present as a reference to the tour.
CON000/ CON_TOUR_START_TIME	Tour/StartTime	Restructured	Field renamed.	Allows the flexibility to have multiple independent tours within one ETS file.

CON000/ CON_TOUR_END_TIME	Tour/EndTime	Restructured	Field renamed.	Allows the flexibility to have multiple independent tours within one ETS file.

HWI010 Record – WELL INFORMATION HEADER RECORD

V2.2 Record/ Field	V3.0 Element/ Attribute	Change Type	Change Details	Reason and Related Issues
HWI010/ HWI_LICENCE_NUM	WellTour/LicenseNo	Renamed	Field renamed.	Changed to conform to the established naming conventions.
HWI010/ HWI_WELL_NAME	WellTour/WellName	Renamed	Field renamed.	Changed to conform to the established naming conventions.
HWI010/ HWI_OPERATOR	WellTour/Operator/Name	Renamed	Field renamed.	Changed to conform to the established naming conventions.
HWI010/ HWI_CONTRACTOR	WellTour/Contractor/Name	Renamed	Field renamed.	Changed to conform to the established naming conventions.
HWI010/ HWI_SURFACE_LOCATION	WellTour/SurfaceLocation	Renamed	Field renamed.	Changed to conform to the established naming conventions.
HWI010/ HWI_UNIQUE_ID	WellTour/UniqueWellId	Renamed	Field renamed.	Changed to conform to the established naming conventions.
HWI010/ HWI_OPERATOR_SIGNATURE	DayTour/OperatorRep	Renamed	Field renamed.	Changed to conform to the established naming conventions.
HWI010/ HWI_CONTRACTOR_SIGNATURE	DayTour/ContractorRep	Renamed	Field renamed.	Changed to conform to the established naming conventions.
HWI010/ HWI_DATE	DayTour/Date	Restructured	Field renamed. Moved to consolidate day	Allows the flexibility to have multiple days within one ETS file.

				information.
HWI010/ HWI_CONTRACTOR_SIGNED	DayTour/ContractorSigned	Restructured	Field renamed. Moved to consolidate day information. Data type now Boolean.	Allows the flexibility to have multiple days within one ETS file.
HWI010/ HWI_OPERATOR_SIGNED	DayTour/OperatorSigned	Restructured	Field renamed. Moved to consolidate day information. Data type now Boolean.	Allows the flexibility to have multiple days within one ETS file.
HWI010/ HWI_RIG_NUM	WellTour/Rig/RigId	Modified	Field renamed. Field length now 4 characters.	Changed to conform to the established naming conventions and design principles.
HWI010/ HWI_SPUD_DATE HWI010/ HWI_SPUD_TIME	WellTour/SpudDateTime	Restructured	Separate date and time fields combined into one field.	Changed to conform to established design principles.
HWI010/ HWI_RR_DATE HWI010/ HWI_RR_TIME	WellTour/RigReleaseDateTime	Restructured	Separate date and time fields combined into one field.	Changed to conform to established design principles.
HWI010/ HWI_JOB_NUM	WellTour/JobNo	Renamed	Field renamed.	Changed to conform to the established naming conventions.
HWI010/ HWI_AFE_NUM	WellTour/AfeNo	Renamed	Field renamed.	Changed to conform to the established naming conventions.
HWI010/ HWI_WELL_TYPE	WellTour/WellType	Modified	Field renamed. Entries now restricted to pick list options.	Changed to conform to the established naming conventions and design principles.

HWI010/ HWI_REENTRY	WellTour/IsReentry	Modified	Field renamed. Data type now Boolean.	Changed to conform to the established naming conventions and design principles.
HWI010/ HWI_KB	WellTour/KBHeight	Renamed	Field renamed.	Changed to conform to the established naming conventions.
HWI010/ HWI_KB_UOM	WellTour/KBHeight/ uom	Modified	Field renamed. Entries now available from pick list options.	Changed to conform to the established naming conventions and design principles.

HCO030 Record – DAILY CHECKS OPER/CONTR HEADER RECORD

V2.2 Record/ Field	V3.0 Element/ Attribute	Change Type	Change Details	Reason and Related Issues
HCO030/ HCO_CHECK_NO	DayTour/OperatorChecks/ OperatorCheck/CheckNo	Renamed	Field renamed.	Changed to conform to the established naming conventions.
HCO030/ HCO_DESC		Deleted	Field deleted.	Deleted, as it does not specify any additional information. The CheckNo element indicates the specific safety check.
HCO030/ HCO_OPERATOR_INITIALS	DayTour/OperatorChecks/ OperatorCheck/OperatorInitial	Modified	Field renamed. Field now optional.	Changed to conform to the established naming conventions and design principles.
HCO030/ HCO_CONTRACTOR_INITIALS	DayTour/OperatorChecks/ OperatorCheck/ContractorInitial	Modified	Field renamed. Field now optional.	Changed to conform to the established naming conventions and design principles.

HDC040 Record – DAILY CHECKS CONTRACTOR HEADER RECORD

V2.2 Record/ Field	V3.0 Element/ Attribute	Change Type	Change Details	Reason and Related Issues
HDC040/ HCO_CHECK_NO	DayTour/ContractorChecks/ ContractorCheck/CheckNo	Renamed	Field renamed.	Changed to conform to the established naming conventions.
HDC040/ HCO_DESC		Deleted	Field deleted.	Deleted, as it does not specify any additional information. The CheckNo element indicates the specific safety check.
HDC040/ HCO_CONTRACTOR_INITIALS	DayTour/ContractorChecks/ ContractorCheck/ContractorInitial	Modified	Field renamed. Field now optional.	Changed to conform to the established naming conventions and design principles.

HFU050 Record – FUEL AT 0800 HEADER RECORD

V2.2 Record/ Field	V3.0 Element/ Attribute	Change Type	Change Details	Reason and Related Issues
HFU050/ HFU_RIG_FUEL	DayTour/FuelAt800/RigFuel	Renamed	Field renamed.	Changed to conform to the established naming conventions.
HFU050/ HFU_BOILER_FUEL	DayTour/FuelAt800/BoilerFuel	Renamed	Field renamed.	Changed to conform to the established naming conventions.
HFU050/ HFU_FUEL_UOM	DayTour/FuelAt800/RigFuel/ uom DayTour/FuelAt800/BoilerFuel/ uom DayTour/FuelAt800/OperatorConsumption/ uom	Modified	Field split. Entries now available from pick list options.	Split to improve the accuracy of the data by allowing different measurements at each usage point.
HFU050/ HFU_OPER_FUEL	DayTour/FuelAt800/OperatorConsumption	Renamed	Field renamed.	Changed to conform to the established naming conventions.

HWE060 Record – WEATHER HEADER RECORD

V2.2 Record/ Field	V3.0 Element/ Attribute	Change Type	Change Details	Reason and Related Issues
HWE060/ HWE_TEMP	DayTour/Weather/Temperature	Modified	Field renamed. Field length now 5 digits with up to 2 decimal places.	Changed to conform to the established naming conventions and design principles.
HWE060/ HWE_TEMP_UOM	DayTour/Weather/Temperature/ uom	Modified	Field renamed. Entries now available from pick list options.	Changed to conform to the established naming conventions and design principles.
HWE060/ HWE_CONDITIONS	DayTour/Weather/Condition	Modified	Field renamed. Entries now restricted to pick list options.	Changed to conform to the established naming conventions and design principles.
HWE060/ HWE_WIND_DIRECTION	DayTour/Weather/WindDirection	Modified	Field renamed. Entries now restricted to pick list options.	Changed to conform to the established naming conventions and design principles.
HWE060/ HWE_ROAD_CONDITION	DayTour/Weather/RoadCondition	Modified	Field renamed. Entries now restricted to pick list options.	Changed to conform to the established naming conventions and design principles.
HWE060/ HWE_WIND_STRENGTH	DayTour/Weather/WindStrength	Modified	Field renamed. Entries now restricted to pick list options.	Changed to conform to the established naming conventions and design principles.
HWE060/ HWE_TIME	DayTour/Weather/Time	Modified	Field renamed. Time zone	Changed to conform to the established naming conventions

			adjustment added to field. Field now mandatory.	and design principles.

HCS070 Record – LAST CASING TUBING OR LINER HEADER RECORD

V2.2 Record/ Field	V3.0 Element/ Attribute	Change Type	Change Details	Reason and Related Issues
	`DayTour/Tubular/Casings/ Casing/Category`	Added	Field added.	Added to define the type of casing being described.
`HCS070/ HCS_OUTSIDE_DIAM`	`DayTour/Tubular/Casings/ Casing/OutsideDiameter`	Renamed	Field renamed. Field now optional.	Changed to conform to the established naming conventions.
`HCS070/ HCS_INSIDE_DIAM`	`DayTour/Tubular/Casings/ Casing/InsideDiameter`	Renamed	Field renamed. Field now optional.	Changed to conform to the established naming conventions.
`HCS070/ HCS_TUBULAR_UOM`	`DayTour/Tubular/Casings/ Casing/OutsideDiameter/ uom` `DayTour/Tubular/Casings/ Casing/InsideDiameter/ uom`	Modified	Field split. Entries now available from pick list options.	Split to improve the accuracy of the data by allowing different measurements at each usage point.
`HCS070/ HCS_DENSITY`	`DayTour/Tubular/Casings/ Casing/LinearMass`	Renamed	Field renamed. Field now optional.	Changed to conform to the established naming conventions.
	`DayTour/Tubular/Casings/ Casing/LinearMass/ uom`	Added	Additional unit of measurement field.	Added to maintain consistency with other values that have a unit of measure.
`HCS070/ HCS_MAKE`	`DayTour/Tubular/Casings/ Casing/Make`	Renamed	Field renamed. Field is now optional.	Changed to conform to the established naming conventions.

HCS070/ HCS_GRADE	DayTour/Tubular/Casings/ Casing/Grade	Renamed	Field renamed.	Changed to conform to the established naming conventions.
	DayTour/Tubular/Casings/ Casing/Mass	Added	Field added.	Added to capture common casing details.
	DayTour/Tubular/Casings/ Casing/Mass/uom	Added	Field added.	Added to maintain consistency with other values that have a unit of measure.
HCS070/ HCS_NO_OF_JOINTS	DayTour/Tubular/Casings/ Casing/JointsCount	Renamed	Field renamed.	Changed to conform to the established naming conventions.
HCS070/ HCS_TOTAL_LENGTH	DayTour/Tubular/Casings/ Casing/TotalLength	Renamed	Field renamed.	Changed to conform to the established naming conventions.
	DayTour/Tubular/Casings/ Casing/TotalLength/uom	Added	Additional unit of measurement field.	Added to maintain consistency with other values that have a unit of measure.

HCS070/
  HCS_KB_TO_CSG_HE
  AD
	DayTour/Tubular/Casings/
	Casing/KBToCasingHead
		Renamed	Field renamed.	Changed to conform to the established naming conventions.

	DayTour/Tubular/Casings/ Casing/KBToCasingHead/ uom	Added	Additional unit of measurement field.	Added to maintain consistency with other values that have a unit of measure.
HCS070/ HCS_SET_AT	DayTour/Tubular/Casings/ Casing/KBToCasingBottom	Renamed	Field renamed.	Changed to conform to the established naming conventions.
	DayTour/Tubular/Casings/ Casing/KBToCasingBottom/ uom	Added	Additional unit of measurement field.	Added to maintain consistency with other values that have a unit of measure.

| HCS070/
  HCS_REMARK | DayTour/Tubular/Remarks | Restructured | Field renamed. Moved to a dedicated element. | A dedicated Remarks element allows for more flexibility and better consistency with other comments within the ETS data. |

HDP080 Record – DRILL COLLAR/DRILL PIPE HEADER RECORD

V2.2 Record/ Field	V3.0 Element/ Attribute	Change Type	Change Details	Reason and Related Issues
HDP080/ HDP_OUTSIDE_DIAM	DayTour/Tubular/DrillPipes/ DrillPipe/OutsideDiameter	Renamed	Field renamed.	Changed to conform to the established naming conventions.
HDP080/ HDP_LINEAR_MASS	DayTour/Tubular/DrillPipes/ DrillPipe/LinearMass	Renamed	Field renamed.	Changed to conform to the established naming conventions.

HDP080/
  HDP_MASS_UOM
	DayTour/Tubular/DrillPipes/
	DrillPipe/LinearMass/
	  uom
		Modified	Field renamed. Entries now available from pick list options.	Changed to conform to the established naming conventions and design principles.

HDP080/ HDP_GRADE	DayTour/Tubular/DrillPipes/ DrillPipe/Grade	Renamed	Field renamed.	Changed to conform to the established naming conventions.
HDP080/ HDP_INSIDE_DIAM	DayTour/Tubular/DrillPipes/ DrillPipe/InsideDiameter	Renamed	Field renamed.	Changed to conform to the established naming conventions.
HDP080/ HDP_TOOL_JOINT_OD	DayTour/Tubular/DrillPipes/ DrillPipe/ToolJointOutsideDiameter	Renamed	Field renamed.	Changed to conform to the established naming conventions.

HDP080/
  HDP_DIAMETER_UOM
	DayTour/Tubular/DrillPipes/
	DrillPipe/OutsideDiameter/
	  uom
	DayTour/Tubular/DrillPipes/
	DrillPipe/InsideDiameter/
		Modified	Field split. Entries now available from pick list options.	Split to improve the accuracy of the data by allowing different measurements at each usage point.

	`uom`
	`DayTour/Tubular/DrillPipes/`
	`DrillPipe/ToolJointOutsideDiameter/`
	`uom`			

`HDP080/` `  HDP_TYPE_THREAD`	`DayTour/Tubular/DrillPipes/` `DrillPipe/TypeThread`	Renamed	Field renamed.	Changed to conform to the established naming conventions.
`HDP080/` `  HDP_NO_OF_JOINTS`	`DayTour/Tubular/DrillPipes/` `DrillPipe/JointsCount`	Renamed	Field renamed.	Changed to conform to the established naming conventions.
`HDP080/` `  HDP_TYPE`	`DayTour/Tubular/DrillPipes/` `DrillPipe/Category`	Modified	Field renamed. Field now mandatory. Entries now restricted to pick list options.	Changed to conform to the established naming conventions and design principles.
`HDP080/` `  HDP_REMARK`	`DayTour/Tubular/Remarks`	Restructured	Field renamed. Moved to a dedicated element.	A dedicated Remarks element allows for more flexibility and better consistency with other comments within the ETS data.

HPU090 Record – PUMP DETAILS HEADER RECORD

V2.2 Record/ Field	V3.0 Element/ Attribute	Change Type	Change Details	Reason and Related Issues
`HPU090/` `  SEQ_ID`	`DayTour/Equipment/MudPumps/` `MudPump/pumpNo`	Modified	Field renamed. Moved to consolidate equipment information.	Defined as an attribute as the pump number is not core information and is only present as a reference to the pump.
`HPU090/` `  HPU_PUMP_TYPE`	`DayTour/Equipment/MudPumps/` `MudPump/Model`	Renamed	Field renamed. Moved to consolidate equipment information. Field length now 24	Changed to conform to the established naming conventions.

				characters.
HPU090/ HPU_PUMP_MANUFACTURER	DayTour/Equipment/MudPumps/ MudPump/Make	Renamed	Field renamed. Moved to consolidate equipment information. Field length now 24 characters.	Changed to conform to the established naming conventions.
	DayTour/Equipment/MudPumps/ MudPump/Provider	Added	Field added.	Added to meet common equipment/rental data requirements.
	DayTour/Equipment/MudPumps/ MudPump/ExpenseOf	Added	Field added.	Added to meet common equipment/rental data requirements.
	DayTour/Equipment/MudPumps/ MudPump/RentalCompany	Added	Field added.	Added to meet common equipment/rental data requirements.
	DayTour/Equipment/MudPumps/ MudPump/SerialNo	Added	Field added.	Added to meet common equipment/rental data requirements.
	DayTour/Equipment/MudPumps/ MudPump/HoursRun	Added	Field added.	Added to meet common equipment/rental data requirements.
	DayTour/Equipment/MudPumps/ MudPump/HoursRun/uom	Added	Field added.	Added to maintain consistency with other values that have a unit of measure.
HPU090/ HPU_STROKE_LENGTH	DayTour/Equipment/MudPumps/ MudPump/StrokeLength	Renamed	Field renamed. Moved to consolidate equipment information.	Changed to conform to the established naming conventions.
HPU090/ HPU_STROKE_LENGTH_UOM	DayTour/Equipment/MudPumps/ MudPump/StrokeLength/uom	Modified	Field renamed. Moved to consolidate equipment	Changed to conform to the established naming conventions and design

			information. Entries now available from pick list options.	principles.
`HPU090/` `  HPU_ROD_SIZE`	`DayTour/Equipment/MudPumps/` `MudPump/RodSize`	Renamed	Field renamed. Moved to consolidate equipment information.	Changed to conform to the established naming conventions.
`HPU090/` `  HPU_ ROD_SIZE_UOM`	`DayTour/Equipment/MudPumps/` `MudPump/RodSize/uom`	Modified	Field renamed. Moved to consolidate equipment information. Entries now available from pick list options.	Changed to conform to the established naming conventions and design principles.
`HPU090/` `  HPU_PUMP_STYLE`	`DayTour/Equipment/MudPumps/` `MudPump/PumpStyle`	Modified	Field renamed. Moved to consolidate equipment information. Entries now restricted to pick list options.	Changed to conform to the established naming conventions and design principles.
`HPU090/` `  HPU_REMARK`	`DayTour/Equipment/MudPumps/` `MudPump/Remarks`	Restructured	Field renamed. Moved to consolidate equipment information. Moved to a dedicated element.	A dedicated Remarks element allows for more flexibility and better consistency with other comments within the ETS data.

HTC100 Record – TIME CODE DESCRIPTION HEADER RECORD

V2.2 Record/ Field	V3.0 Element/ Attribute	Change Type	Change Details	Reason and Related Issues
HTC100/ HTC_CODE_NO		Deleted	Field deleted.	Similar capability implemented by the Time Code pick list.
HTC100/ HTD_DESC		Deleted	Field deleted.	The XML structure no longer requires such a value.

HSS110 Record – SHALE SHAKERS HEADER RECORD

V2.2 Record/ Field	V3.0 Element/ Attribute	Change Type	Change Details	Reason and Related Issues
HSS110/ HSS_SHAKER_NO	DayTour/Equipment/ShaleShakers/ ShaleShaker/ShakerNo	Renamed	Field renamed. Moved to consolidate equipment information.	Changed to conform to the established naming conventions.
HSS110/ HSS_SHAKER_TYPE	DayTour/Equipment/ShaleShakers/ ShaleShaker/Make DayTour/Equipment/ShaleShakers/ ShaleShaker/Model	Modified	Field split.	Split to meet common equipment/rental data requirements.
HSS110/ HSS_SCREENS_CHANGED	DayTour/Equipment/ShaleShakers/ ShaleShaker/Screens/ Screen/IsScreenChanged	Restructured	Each screen now has its own value. Moved to consolidate equipment information. Field is now Boolean.	Changed to increase flexibility by grouping details per screen.
HSS110/ HSS_TOP_SCREEN HSS110/ HSS_MIDDLE_SCREEN HSS110/ HSS_ BOTTOM_SCREEN	DayTour/Equipment/ShaleShakers/ ShaleShaker/Screens/ Screen/Size DayTour/Equipment/ShaleShakers/ ShaleShaker/Screens/	Restructured	Moved to consolidate equipment information. Each screen now has its own set of values.	Changed to increase flexibility by grouping details per screen.

	Screen/Position			
`HSS110/` `  HSS_REMARK`	`DayTour/Equipment/ShaleShakers/` `ShaleShaker/Remarks`	Restructured	Field renamed. Moved to consolidate equipment information. Moved to a dedicated element.	A dedicated Remarks element allows for more flexibility and better consistency with other comments within the ETS data.

`HSS110/`
`  HSS_NEW`
	`DayTour/Equipment/ShaleShakers/`
	`ShaleShaker/Screens/`
	`Screen/IsNew`
		Restructured	Moved to consolidate equipment information. Each screen now has its own value. Field is now Boolean.	Changed to increase flexibility by grouping details per screen.

HRN120 Record – RENTALS/SERVICES HEADER RECORD

V2.2 Record/ Field	V3.0 Element/ Attribute	Change Type	Change Details	Reason and Related Issues
`HRN120/` `  HRN_DESC`	`DayTour/Equipment/EquipmentOrServices/` `EquipmentOrService/Description`	Renamed	Field renamed. Moved to consolidate equipment information.	Changed to conform to the established naming conventions.
	`DayTour/Equipment/EquipmentOrServices/` `EquipmentOrService/Make`	Added	Field added.	Added to meet common equipment/rental data requirements.
	`DayTour/Equipment/EquipmentOrServices/` `EquipmentOrService/Model`	Added	Field added.	Added to meet common equipment/rental data requirements.
	`DayTour/Equipment/EquipmentOrServices/` `EquipmentOrService/Provider`	Added	Field added.	Added to meet common equipment/rental data requirements.

	`DayTour/Equipment/EquipmentOrServices/` `EquipmentOrService/ExpenseOf`	Added	Field added.	Added to meet common equipment/rental data requirements.
	`DayTour/Equipment/EquipmentOrServices/` `EquipmentOrService/RentalCompany`	Added	Field added.	Added to meet common equipment/rental data requirements.
	`DayTour/Equipment/EquipmentOrServices/` `EquipmentOrService/SerialNo`	Added	Field added.	Added to meet common equipment/rental data requirements.
`HRN120/` `   HRN_MORNING_TIME` `HRN120/` `   HRN_DAY_TIME` `HRN120/` `   HRN_EVENING_TIME`	`DayTour/Equipment/EquipmentOrServices/` `RentalOrService/Usage` `DayTour/Equipment/EquipmentOrServices/` `RentalOrService/Usage/` `   uom`	Restructured	Moved to consolidate equipment information. The individual hours per tour is now one usage time value for the day.	Changed to increase flexibility to record different units of time.
	`DayTour/Equipment/EquipmentOrServices/` `EquipmentOrService/Quantity`	Added	Field added.	Added to meet common equipment/rental data requirements.
	`DayTour/Equipment/EquipmentOrServices/` `EquipmentOrService/QuantityUsed`	Added	Field added.	Added to meet common equipment/rental data requirements.
	`DayTour/Equipment/EquipmentOrServices/` `EquipmentOrService/Remarks`	Added	Field added.	A dedicated Remarks element allows for more flexibility and better consistency with other comments within the ETS data.

HPA130 Record – PAYROLL HEADER RECORD

V2.2 Record/ Field	V3.0 Element/ Attribute	Change Type	Change Details	Reason and Related Issues
HPA130/ HPA_WELL_NAME_&_NUM	WellTour/WellName	Modified	Field renamed. Moved to consolidate well information. Maximum length is now 60 characters.	Allows the flexibility to have multiple independent wells within one ETS file.
HPA130/ HPA_DATE	DayTour/Date	Restructured	Field renamed. Moved to consolidate tour information.	Allows the flexibility to have multiple independent tours within one ETS file.
HPA130/ HPA_OPERATOR	WellTour/Operator/Name	Restructured	Field renamed. Moved to consolidate operator information associated with a well.	Allows the flexibility to have multiple independent wells within one ETS file.
HPA130/ HPA_CONTRACTOR	WellTour/Contractor/Name	Restructured	Field renamed. Moved to consolidate contractor information associated with a well.	Allows the flexibility to have multiple independent wells within one ETS file.
HPA130/ HPA_RIG_MGR	DayTour/ContractorRep	Restructured	Field renamed. Moved to consolidate rig information associated with a well.	Allows the flexibility to have multiple independent rigs within one ETS file.
HPA130/ HPA_RIG_NUM	WellTour/Rig/RigId	Modified	Field renamed. Moved to consolidate rig information	Allows the flexibility to have multiple independent rigs within one ETS file.

			associated with a well. Field length now 4 characters.	
HPA130/ HPA_PROVINCE	WellTour/Rig/Province	Restructured	Field renamed. Moved to consolidate rig information associated with a well. Entries now restricted to pick list options.	Allows the flexibility to have multiple independent rigs within one ETS file.
HPA130/ HPA_CAMP	DayTour/DayPayroll/Camp	Restructured	Field renamed. Moved to consolidate payroll information for the day. Entries now restricted to pick list options.	Allows the flexibility to have a different camp value per day.
	DayTour/DayPayroll/IsTD4	Added	Field added.	When confirmed by the rig manager, indicates whether TD4's are required and have been completed.
HPA130/ RIG_SAFETY_DAYS	WellTour/Rig/RigSafetyDays	Restructured	Field renamed. Moved to consolidate rig information associated with a well.	Allows the flexibility to have multiple independent rigs within one ETS file.

TDA010 Record – DRILLING ASSEMBLY TOUR RECORD

V2.2 Record/ Field	V3.0 Element/ Attribute	Change Type	Change Details	Reason and Related Issues
TDA010/ TDA_NO	Tour/DrillingAssemblys/DrillingAssembly/ BHAComponents/BHAComponent/PiecesCount	Renamed	Field renamed.	Changed to conform to the established naming conventions.

TDA010/ TDA_DESC	Tour/DrillingAssemblys/DrillingAssembly/ BHAComponents/BHAComponent/Description	Renamed	Field renamed.	Changed to conform to the established naming conventions.
TDA010/ TDA_OD	Tour/DrillingAssemblys/DrillingAssembly/ BHAComponents/BHAComponent/OutsideDiameter	Renamed	Field renamed.	Changed to conform to the established naming conventions.
TDA010/ TDA_OD_UOM	Tour/DrillingAssemblys/DrillingAssembly/ BHAComponents/BHAComponent/OutsideDiameter/ uom	Modified	Field renamed. Entries now available from pick list options.	Changed to conform to the established naming conventions and design principles.
	Tour/DrillingAssemblys/DrillingAssembly/ BHAComponents/BHAComponent/InsideDiameter	Added	Field added.	Added to provide additional detail regarding the drill string.
	Tour/DrillingAssemblys/DrillingAssembly/ BHAComponents/BHAComponent/InsideDiameter/ uom	Added	Field added.	Added to provide additional detail regarding the drill string.
TDA010/ TDA_LENGTH	Tour/DrillingAssemblys/DrillingAssembly/ BHAComponents/BHAComponent/Length	Renamed	Field renamed.	Changed to conform to the established naming conventions.
TDA010/ TDA_LENGTH_UOM	Tour/DrillingAssemblys/DrillingAssembly/ BHAComponents/BHAComponent/Length/ uom	Modified	Field renamed. Entries now available from pick list options.	Changed to conform to the established naming conventions and design principles.

TDT020 Record – DRILLING ASSEMBLY TOTALS TOUR RECORD

V2.2 Record/ Field	V3.0 Element/ Attribute	Change Type	Change Details	Reason and Related Issues
TDT020/ TDT_DP_STANDS_NUM	Tour/DrillingAssemblys/ DrillingAssembly/StandsCount	Renamed	Field renamed.	Changed to conform to the established naming conventions.

`TDT020/` `   TDT_DP_STANDS_LENGTH`	`Tour/DrillingAssemblys/` `DrillingAssembly/StandsLength`	Renamed	Field renamed.	Changed to conform to the established naming conventions.
`TDT020/` `   TDT_DP_SINGLES_NUM`	`Tour/DrillingAssemblys/` `DrillingAssembly/SinglesCount`	Renamed	Field renamed.	Changed to conform to the established naming conventions.
`TDT020/` `   TDT_DP_SINGLES_LENGTH`	`Tour/DrillingAssemblys/` `DrillingAssembly/SinglesLength`	Renamed	Field renamed.	Changed to conform to the established naming conventions.
`TDT020/` `   TDT_KELLY_DOWN`	`Tour/DrillingAssemblys/` `DrillingAssembly/KellyDown`	Renamed	Field renamed.	Changed to conform to the established naming conventions.
`TDT020/` `   TDT_TOTAL_LENGTH`		Deleted	Field deleted.	Deleted calculated field to conform to established design principles.

`TDT020/`
`   TDT_UOM`
	`Tour/DrillingAssemblys/`
	`DrillingAssembly/StandsLength/`
	`   uom`
	`Tour/DrillingAssemblys/`
	`DrillingAssembly/SinglesLength/`
	`   uom`
	`Tour/DrillingAssemblys/`
	`DrillingAssembly/KellyDown/`
	`   uom`
		Modified	Field split. Entries now available from pick list options.	Split to improve the accuracy of the data by allowing different measurements at each usage point.

TSW030 Record – DRILLING ASSEMBLY WEIGHT TOUR RECORD

V2.2 Record/ Field	V3.0 Element/ Attribute	Change Type	Change Details	Reason and Related Issues
`TSW030/` `   TSW_DC_WEIGHT`	`Tour/DrillingAssemblys/` `DrillingAssembly/WeightOfDrillCollar`	Modified	Field renamed. Field length now 10 digits with up to 5 decimal places.	Changed to conform to the established naming conventions and design principles.

TSW030/ TSW_STRING_WEIGHT	Tour/DrillingAssemblys/ DrillingAssembly/WeightOfString	Modified	Field renamed. Field length now 10 digits with up to 5 decimal places.	Changed to conform to the established naming conventions and design principles.

TSW030/
TSW_UOM
	Tour/DrillingAssemblys/
	DrillingAssembly/WeightOfDrillCollar/
	  uom
	Tour/DrillingAssemblys/
	DrillingAssembly/WeightOfString/
	  uom
		Modified	Field split. Entries now available from pick list options.	Split to improve the accuracy of the data by allowing different measurements at each usage point.

TBR040 Record – BIT RECORD TOUR RECORD

V2.2 Record/ Field	V3.0 Element/ Attribute	Change Type	Change Details	Reason and Related Issues
TBR040/ TBR_BIT_NUM	DayTour/Equipment/Bits/ Bit/BitNo	Renamed	Field renamed. Moved to consolidate equipment information.	Changed to conform to the established naming conventions.
TBR040/ TBR_BIT_SIZE	DayTour/Equipment/Bits/ Bit/Size	Renamed	Field renamed. Moved to consolidate equipment information.	Changed to conform to the established naming conventions.
TBR040/ TBR_BIT_SIZE_UOM	DayTour/Equipment/Bits/ Bit/Size/ uom	Modified	Field renamed. Moved to consolidate equipment information. Entries now available from pick list options.	Changed to conform to the established naming conventions and design principles.

TBR040/ TBR_BIT_IADC_CODE_1	DayTour/Equipment/Bits/ Bit/IADCCode1	Modified	Field renamed. Moved to consolidate equipment information. Field now optional. Entries now available from pick list options.	Changed to conform to the established naming conventions.
TBR040/ TBR_BIT_IADC_CODE_2	DayTour/Equipment/Bits/ Bit/IADCCode2	Modified	Field renamed. Moved to consolidate equipment information. Field now optional. Entries now available from pick list options.	Changed to conform to the established naming conventions.
TBR040/ TBR_BIT_IADC_CODE_3	DayTour/Equipment/Bits/ Bit/IADCCode3	Modified	Field renamed. Moved to consolidate equipment information. Field now optional. Entries now available from pick list options.	Changed to conform to the established naming conventions.
TBR040/ TBR_BIT_IADC_CODE_4	DayTour/Equipment/Bits/ Bit/IADCCode4	Modified	Field renamed. Moved to consolidate equipment information.	Changed to conform to the established naming conventions. Can now have a value.

				Entries now available from pick list options.	
TBR040/ TBR_BIT_MANUFACTURER	DayTour/Equipment/Bits/ Bit/Manufacturer	Renamed	Field renamed. Moved to consolidate equipment information. Field now optional.	Changed to conform to the established naming conventions.	
TBR040/ TBR_BIT_TYPE	DayTour/Equipment/Bits/ Bit/BitType	Renamed	Field renamed. Moved to consolidate equipment information. Field now optional.	Changed to conform to the established naming conventions.	
TBR040/ TBR_BIT_SERIAL_NUM	DayTour/Equipment/Bits/ Bit/SerialNo	Renamed	Field renamed. Moved to consolidate equipment information. Field now optional.	Changed to conform to the established naming conventions.	
TBR040/ TBR_BIT_JET_NO	DayTour/Equipment/Bits/ Bit/JetsCount	Renamed	Field renamed. Moved to consolidate equipment information. Field now optional.	Changed to conform to the established naming conventions.	
TBR040/ TBR_BIT_JET_REMARK	DayTour/Equipment/Bits/ Bit/JetRemark	Renamed	Field renamed. Moved to consolidate equipment information.	Changed to conform to the established naming conventions.	

`TBR040/`
  `TBR_BIT_JET_UOM`
	`DayTour/Equipment/Bits/`
	`Bit/BitJets/BitJet/OrificeDiameter/`
	  `uom`
		Restructured	Field moved to associate the units with the value.	Units of measure are now an attribute of each value.

`TBR040/` `TBR_BIT_DEPTH_OUT`	`DayTour/Equipment/Bits/` `Bit/DepthOut`	Renamed	Field renamed. Moved to consolidate equipment information. Field now optional.	Changed to conform to the established naming conventions.
`TBR040/` `TBR_BIT_DEPTH_IN`	`DayTour/Equipment/Bits/` `Bit/DepthIn`	Renamed	Field renamed. Moved to consolidate equipment information. Field now optional.	Changed to conform to the established naming conventions.
`TBR040/` `TBR_TOTAL_DRILLED`		Deleted	Field deleted.	Deleted calculated field to conform to established design principles.

`TBR040/`
  `TBR_DEPTH_UOM`
	`DayTour/Equipment/Bits/`
	`Bit/DepthOut/`
	  `uom`
	`DayTour/Equipment/Bits/`
	`Bit/DepthIn/`
	  `uom`
		Modified	Field split. Moved to consolidate equipment information. Entries now available from pick list options.	Split to improve the accuracy of the data by allowing different measurements at each usage point.

`TBR040/` `TBR_TOTAL_HRS_RUN`	`DayTour/Equipment/Bits/` `Bit/CumulativeHoursRun`	Renamed	Field renamed. Moved to consolidate equipment information.	Changed to conform to the established naming conventions.
	`DayTour/Equipment/Bits/`	Added	Field added.	Added to help estimate

	Bit/CumulativeHoursRun			the remaining life of the bit.
TBR040/ TBR_REMARK	DayTour/Equipment/Bits/ Bit/Remarks	Restructured	Field renamed. Moved to consolidate equipment information. Moved to a dedicated element.	A dedicated Remarks element allows for more flexibility and better consistency with other comments within the ETS data.
TBR040/ TBR_ENTRY_DATE	DayTour/Equipment/Bits/ Bit/EntryDate	Modified	Field renamed. Moved to consolidate equipment information.	Changed to conform to the established naming conventions and design principles.

TBJ045 Record – BIT JET SIZE AND DESCRIPTION

V2.2 Record/ Field	V3.0 Element/ Attribute	Change Type	Change Details	Reason and Related Issues
TBJ045/ TBJ_JET_NO		Deleted	Field deleted.	The XML structure no longer requires such a value.
TBJ045/ TBJ_JET_DIAMETER	DayTour/Equipment/Bits/ Bit/BitJets/BitJet/OrificeDiameter	Modified	Field renamed. Moved to consolidate equipment information. Field length now 8 digits with up to 3 decimal places.	Changed to conform to the established naming conventions and design principles.

	DayTour/Equipment/Bits/ Bit/BitJets/BitJet/OrificeDiameter/ uom	Added	Additional unit of measurement field.	Added to maintain consistency with other values that have a unit of measure.
TBJ045/ TBJ_JET_DESC	DayTour/Equipment/Bits/ Bit/BitJets/BitJet/Description	Renamed	Field renamed. Moved to consolidate equipment information.	Changed to conform to the established naming conventions.

TBC050 Record – BIT CONDITION TOUR RECORD

V2.2 Record/ Field	V3.0 Element/ Attribute	Change Type	Change Details	Reason and Related Issues
TBC050/ TBC_BIT_NUM		Deleted	Field deleted.	The XML structure no longer requires such a value.
TBC050/ TBC_BIT_CS_T1	DayTour/Equipment/Bits/ Bit/BitCondition/CsT1	Modified	Field renamed. Moved to consolidate equipment information. Entries now restricted to pick list options.	Changed to conform to the established naming conventions and design principles.
TBC050/ TBC_BIT_CS_T0	DayTour/Equipment/Bits/ Bit/BitCondition/CsT0	Modified	Field renamed. Moved to consolidate equipment information. Entries now restricted to pick list options.	Changed to conform to the established naming conventions and design principles.
TBC050/ TBC_BIT_CS_MDC	DayTour/Equipment/Bits/ Bit/BitCondition/CsMdc	Modified	Field renamed. Moved to consolidate	Changed to conform to the established naming conventions and design

			equipment information. Entries now restricted to pick list options.	principles.
TBC050/ TBC_BIT_CS_LOC	DayTour/Equipment/Bits/ Bit/BitCondition/CsLoc	Modified	Field renamed. Moved to consolidate equipment information. Entries now restricted to pick list options.	Changed to conform to the established naming conventions and design principles.
TBC050/ TBC_BIT_BEARING	DayTour/Equipment/Bits/ Bit/BitCondition/Bearing	Modified	Field renamed. Moved to consolidate equipment information. Entries now restricted to pick list options.	Changed to conform to the established naming conventions and design principles.
TBC050/ TBC_BIT_GAGE	DayTour/Equipment/Bits/ Bit/BitCondition/Gage	Modified	Field renamed. Moved to consolidate equipment information. Field length now 7 digits with up to 2 decimal places.	Changed to conform to the established naming conventions and design principles.

TBC050/
  TBC_BIT_GAGE_UOM
	DayTour/Equipment/Bits/
	Bit/BitCondition/Gage
	  uom
		Modified	Field renamed. Moved to consolidate equipment information. Entries now available from pick list options.	Changed to conform to the established naming conventions and design principles.

TBC050/ TBC_BIT_ODC	DayTour/Equipment/Bits/ Bit/BitCondition/Odc	Modified	Field renamed. Moved to consolidate equipment information. Entries now restricted to pick list options.	Changed to conform to the established naming conventions and design principles.
TBC050/ TBC_BIT_REASON_PULLED	DayTour/Equipment/Bits/ Bit/BitCondition/ReasonPulled	Modified	Field renamed. Moved to consolidate equipment information. Entries now restricted to pick list options.	Changed to conform to the established naming conventions and design principles.
TBC050/ TBC_BIT_TOTAL_RUN		Deleted	Field deleted.	Deleted calculated field to conform to established design principles.
TBC050/ TBC_BIT_TOTAL_RUN_UOM		Deleted	Field deleted.	No longer required since TBC_BIT_TOTAL_RUN was deleted.

THC060 Record – HOLE CONDITION TOUR RECORD

V2.2 Record/ Field	V3.0 Element/ Attribute	Change Type	Change Details	Reason and Related Issues
THC060/ THC_HOLE_DRAG	Tour/HoleCondition/HoleDrag	Modified	Field renamed. Field length now 10 digits with up to 5 decimal places.	Changed to conform to the established naming conventions and design principles.
THC060/ THC_HOLE_DRAG_UOM	Tour/HoleCondition/HoleDrag/ uom	Modified	Field renamed. Entries now available from	Changed to conform to the established naming conventions and design

CAODC

				pick list options.	principles.
THC060/ THC_HOLE_TORQUE_BTM	Tour/HoleCondition/HoleTorque	Renamed	Field renamed.	Changed to conform to the established naming conventions.
THC060/ THC_HOLE_TORQUE_BTM_UOM	Tour/HoleCondition/HoleTorque/ uom	Modified	Field renamed. Entries now available from pick list options.	Changed to conform to the established naming conventions and design principles.
THC060/ THC_HOLE_FILL_BTM	Tour/HoleCondition/FillOnBottom	Renamed	Field renamed.	Changed to conform to the established naming conventions.
THC060/ THC_HOLE_FILL_BTM_OUM	Tour/HoleCondition/FillOnBottom/ uom	Modified	Field renamed. Entries now available from pick list options.	Changed to conform to the established naming conventions and design principles.

TMT070 Record – MUD TYPE TOUR RECORD

V2.2 Record/ Field	V3.0 Element/ Attribute	Change Type	Change Details	Reason and Related Issues
TMT070/ TMT_WATER_BASED	Tour/MudRecord/IsWaterBased	Modified	Field renamed. Data type now Boolean.	Changed to conform to the established naming conventions and design principles.
TMT070/ TMT_OIL_BASED	Tour/MudRecord/IsOilBased	Modified	Field renamed. Data type now Boolean.	Changed to conform to the established naming conventions and design principles.
TMT070/ TMT_REMARK	Tour/MudRecord/OtherType	Renamed	Field renamed.	Changed to conform to the established naming conventions.
TMT070/ TMT_MUD_SYS_TYPE	Tour/MudRecord/MudSystemType	Renamed	Field renamed.	Changed to conform to the established naming conventions.

TMR080 Record – MUD RECORD TOUR RECORD

V2.2 Record/ Field	V3.0 Element/ Attribute	Change Type	Change Details	Reason and Related Issues
`TMR080/ TMR_TIME`	`Tour/MudRecord/MudSamples/ MudSample/Time`	Modified	Field renamed.	Changed to conform to the established naming conventions and design principles.
`TMR080/ TMR_DENSITY`	`Tour/MudRecord/MudSamples/ MudSample/Density`	Renamed	Field renamed.	Changed to conform to the established naming conventions.
`TMR080/ TMR_DENSITY_UOM`	`Tour/MudRecord/ MudSamples/MudSample/Density/ uom`	Modified	Field renamed. Entries now available from pick list options.	Changed to conform to the established naming conventions and design principles.
`TMR080/ TMR_FUNNEL_VIS`	`Tour/MudRecord/MudSamples/ MudSample/FunnelViscosity`	Renamed	Field renamed.	Changed to conform to the established naming conventions.
`TMR080/ TMR_FUNNEL_VIS_UOM`	`Tour/MudRecord/MudSamples/ MudSample/FunnelViscosity/ uom`	Modified	Field renamed. Entries now available from pick list options.	Changed to conform to the established naming conventions and design principles.
`TMR080/ TMR_WATER_LOSS`	`Tour/MudRecord/ MudSamples/MudSample/WaterLoss`	Renamed	Field renamed.	Changed to conform to the established naming conventions.
`TMR080/ TMR_WATER_LOSS_UOM`	`Tour/MudRecord/ MudSamples/MudSample/WaterLoss/ uom`	Modified	Field renamed. Entries now available from pick list options.	Changed to conform to the established naming conventions and design principles.
	`Tour/MudRecord/ MudSamples/MudSample/Test`	Added	Additional field. Field optional.	Available since records `TMR080` and `TMA090` are now recorded using the same `MudSample` element.

	Tour/MudRecord/ MudSamples/MudSample/TestValue	Added	Additional field. Field optional.	Available since records TMR080 and TMA090 are now recorded using the same MudSample element.
	Tour/MudRecord/ MudSamples/MudSample/TestValue/ uom	Added	Additional field. Field optional.	Available since records TMR080 and TMA090 are now recorded using the same MudSample element.
TMR080/ TMR_PH	Tour/MudRecord/ MudSamples/MudSample/FluidPh	Renamed	Field renamed.	Changed to conform to the established naming conventions.
TMR080/ TMR_LOCATION	Tour/MudRecord/ MudSamples/MudSample/Location	Renamed	Field renamed.	Changed to conform to the established naming conventions.
TMR080/ TMR_DEPTH	Tour/MudRecord/ MudSamples/MudSample/Depth	Renamed	Field renamed.	Changed to conform to the established naming conventions.
	Tour/MudRecord/ MudSamples/MudSample/PVT	Added	Additional field. Field optional.	Added to record total volume of drilling fluid.
TMR080/ TMR_REMARK	Tour/MudRecord/ MudSamples/MudSample/Remarks	Restructured	Field renamed. Moved to a dedicated element.	A dedicated Remarks element allows for more flexibility and better consistency with other comments within the ETS data.

TMA090 Record – ADDITIONAL MUD RECORD TOUR RECORD

V2.2 Record/ Field	V3.0 Element/ Attribute	Change Type	Change Details	Reason and Related Issues
TMA090/ TMR_TIME	Tour/MudRecord/MudSamples/ MudSample/Time	Modified	Field renamed.	Changed to conform to the established naming conventions and design

				principles.
	`Tour/MudRecord/MudSamples/ MudSample/Density`	Added	Additional field.	Available since records `TMR080` and `TMA090` are now recorded using the same `MudSample` element.
	`Tour/MudRecord/MudSamples/ MudSample/Density/ uom`	Added	Additional field.	Available since records `TMR080` and `TMA090` are now recorded using the same `MudSample` element.
	`Tour/MudRecord/MudSamples/ MudSample/FunnelViscosity`	Added	Additional field.	Available since records `TMR080` and `TMA090` are now recorded using the same `MudSample` element.
	`Tour/MudRecord/MudSamples/ MudSample/FunnelViscosity/ uom`	Added	Additional field.	Available since records `TMR080` and `TMA090` are now recorded using the same `MudSample` element.
	`Tour/MudRecord/MudSamples/ MudSample/WaterLoss`	Added	Additional field.	Available since records `TMR080` and `TMA090` are now recorded using the same `MudSample` element.
	`Tour/MudRecord/MudSamples/ MudSample/WaterLoss/ uom`	Added	Additional field.	Available since records `TMR080` and `TMA090` are now recorded using the same `MudSample` element.
`TMA090/ TMA_TEST`	`Tour/MudRecord/MudSamples/ MudSample/OtherTests/OtherTest/ TestType`	Renamed	Field renamed.	Changed to conform to the established naming conventions and design principles.

TMA090/ TMA_TEST_VALUE	Tour/MudRecord/MudSamples/ MudSample/OtherTests/OtherTest/ TestValue	Renamed	Field renamed.	Changed to conform to the established naming conventions and design principles.
TMA090/ TMA_TEST_UOM	Tour/MudRecord/MudSamples/ MudSample/OtherTests/OtherTest/ TestValue/ uom	Renamed	Field renamed.	Changed to conform to the established naming conventions.
	Tour/MudRecord/MudSamples/ MudSample/FluidPh	Added	Additional field.	Available since records TMR080 and TMA090 are now recorded using the same MudSample element.
TMA090/ TMA_TEST_LOCATION	Tour/MudRecord/MudSamples/ MudSample/Location	Renamed	Field renamed.	Changed to conform to the established naming conventions.
TMA090/ TMA_DEPTH	Tour/MudRecord/MudSamples/ MudSample/Depth	Renamed	Field renamed.	Changed to conform to the established naming conventions.
	Tour/MudRecord/MudSamples/ MudSample/Remarks	Added	Additional field.	Available since records TMR080 and TMA090 are now recorded using the same MudSample element.

TMM100 Record – MUD MATERIALS TOUR RECORD

V2.2 Record/ Field	V3.0 Element/ Attribute	Change Type	Change Details	Reason and Related Issues
TMM100/ TMM_PRODUCT	Tour/MudRecord/MudMaterials/ MudMaterial/Product	Renamed	Field renamed.	Changed to conform to the established naming conventions.
TMM100/ TMM_AMT	Tour/MudRecord/MudMaterials/ MudMaterial/Amount	Renamed	Field renamed.	Changed to conform to the established naming conventions.

TMM100/ TMM_UNIT	Tour/MudRecord/MudMaterials/ MudMaterial/Unit	Renamed	Field renamed.	Changed to conform to the established naming conventions.
TMM100/ TMM_UNIT_QTY	Tour/MudRecord/MudMaterials/ MudMaterial/UnitQuantity	Renamed	Field renamed.	Changed to conform to the established naming conventions.
TMM100/ TMM_UNIT_UOM	Tour/MudRecord/MudMaterials/ MudMaterial/UnitQuantity/ uom	Renamed	Field renamed.	Changed to conform to the established naming conventions.

TSC110 Record – SOLIDS CONTROL TOUR RECORD

V2.2 Record/ Field	V3.0 Element/ Attribute	Change Type	Change Details	Reason and Related Issues
TSC110/ TSC_EQUIP_NAME	Tour/SolidsControls/ SolidsControl/EquipmentName	Renamed	Field split. Moved to consolidate equipment information.	Changed to conform to the established naming conventions.
TSC110/ TSC_HRS_RUN	Tour/SolidsControls/ SolidsControl/HoursRun	Renamed	Field renamed. Moved to consolidate equipment information.	Changed to conform to the established naming conventions.
TSC110/ TSC_INTAKE_DENSITY	Tour/SolidsControls/ SolidsControl/IntakeDensity	Renamed	Field renamed. Moved to consolidate equipment information.	Changed to conform to the established naming conventions.
TSC110/ TSC_OVERFLOW_DENSITY	Tour/SolidsControls/ SolidsControl/OverflowDensity	Renamed	Field renamed. Moved to consolidate equipment information.	Changed to conform to the established naming conventions.
TSC110/ TSC_UNDERFLOW_DEN	Tour/SolidsControls/ SolidsControl/UnderflowDensity	Renamed	Field renamed. Moved to consolidate equipment	Changed to conform to the established naming conventions.

				information.	

`TSC110/`
`  TSC_DENSITY_UOM`
	`Tour/SolidsControls/`
	`SolidsControl/IntakeDensty/`
	`   uom`
	`Tour/SolidsControls/`
	`SolidsControl/OverflowDensty/`
	`   uom`
	`Tour/SolidsControls/`
	`SolidsControl/UnderflowDensty/`
	`   uom`
		Modified	Field split. Moved to consolidate equipment information. Entries now available from pick list options.	Split to improve the accuracy of the data by allowing different measurements at each usage point.

`TSC110/` `  TSC_REMARK`	`Tour/SolidsControls/` `SolidsControl/Remarks`	Restructured	Field renamed. Moved to consolidate equipment information. Moved to a dedicated element.	A dedicated Remarks element allows for more flexibility and better consistency with other comments within the ETS data.

TMD120 Record – METRES DRILLED TOUR RECORD

V2.2 Record/ Field	V3.0 Element/ Attribute	Change Type	Change Details	Reason and Related Issues
`TMD120/` `  TMD_FROM`	`Tour/DrillRecords/` `DrillRecord/FromDepth`	Modified	Field renamed. Field length now 7 digits with up to 2 decimal places.	Changed to conform to the established naming conventions and design principles.
`TMD120/` `  TMD_TO`	`Tour/DrillRecords/` `DrillRecord/ToDepth`	Modified	Field renamed. Field length now 7 digits with up to 2 decimal places.	Changed to conform to the established naming conventions and design principles.
`TMD120/` `  TMD_TYPE DR-D`	`Tour/DrillRecords/` `DrillRecord/Activity`	Modified	Field renamed. Entries now restricted to pick list options.	Changed to conform to the established naming conventions and design principles.

TMD120/ TMD_INTERVAL		Deleted	Field deleted.	Deleted calculated field to conform to established design principles.
TMD120/ TMD_DEPTH_UOM	Tour/DrillRecords/ DrillRecord/FromDepth/ uom Tour/DrillRecords/ DrillRecord/ToDepth/ uom	Modified	Field split. Entries now available from pick list options.	Split to improve the accuracy of the data by allowing different measurements at each usage point.
TMD120/ TMD_ROTARY_RPM	Tour/DrillRecords/ DrillRecord/RotaryRpm	Renamed	Field renamed.	Changed to conform to the established naming conventions.
TMD120/ TMD_ROTARY_RPM_MIN		Deleted	Field deleted.	Deleted calculated field to conform to established design principles.
TMD120/ TMD_ROTARY_RPM_MAX		Deleted	Field deleted.	Deleted calculated field to conform to established design principles.
TMD120/ TMD_WT_ON_BIT	Tour/DrillRecords/ DrillRecord/WeightOnBit	Renamed	Field renamed.	Changed to conform to the established naming conventions.
TMD120/ TMD_MIN_WT_ON_BIT		Deleted	Field deleted.	Deleted calculated field to conform to established design principles.
TMD120/ TMD_MAX_WT_ON_BIT		Deleted	Field deleted.	Deleted calculated field to conform to established design principles.
TMD120/ TMD_WT_ON_BIT_UOM	Tour/DrillRecords/ DrillRecord/WeightOnBit/ uom	Renamed	Field renamed.	Changed to conform to the established naming conventions.

TCP130 Record – CIRCULATION PRESSURE TOUR RECORD

V2.2 Record/ Field	V3.0 Element/ Attribute	Change Type	Change Details	Reason and Related Issues
TCP130/ TCP_CIRC_PRESSURE	Tour/CirculationPressure/Pressure	Renamed.	Field renamed.	Changed to conform to the established naming conventions.

`TCP130/` `  TCP_CIRC_PRESSURE_MIN`		Deleted	Field deleted.	Deleted calculated field to conform to established design principles.
`TCP130/` `  TCP_CIRC_PRESSURE_MAX`		Deleted	Field deleted.	Deleted calculated field to conform to established design principles.
`TCP130/` `  TCP_PRESSURE_UOM`	`Tour/CirculationPressure/Pressure/` `  uom`	Modified.	Field renamed. Entries now available from pick list options.	Changed to conform to the established naming conventions and design principles.
`TCP130/` `  TCP _PUMP1_LINER`	`Tour/CirculationPressure/CirculationPumps/` `CirculationPump/LinerSize`	Restructured	Now associated with each pump.	Changed to group pump information together.
`TCP130/` `  TCP _PUMP1_SPM`	`Tour/CirculationPressure/CirculationPumps/` `CirculationPump/StrokesPerMinute`	Restructured	Now associated with each pump.	Changed to group pump information together.
`TCP130/` `  TCP _PUMP2_LINER`	`Tour/CirculationPressure/CirculationPumps/` `CirculationPump/LinerSize`	Restructured	Now associated with each pump.	Changed to group pump information together.
`TCP130/` `  TCP _PUMP2_SPM`	`Tour/CirculationPressure/CirculationPumps/` `CirculationPump/StrokesPerMinute`	Restructured	Now associated with each pump.	Changed to group pump information together.

`TCP130/`
  `TCP_LINER_SIZE_UOM`
	`Tour/CirculationPressure/CirculationPumps/`
	`CirculationPump/LinerSize/`
	  `uom`
		Restructured	Now associated with each pump. Entries now available from pick list options.	Changed to conform to the established naming conventions and design principles.

`TCP130/` `TCP_CIRC_PRESSURE_TYPE`	`Tour/CirculationPressure/PressureType`	Modified	Field renamed. Entries now restricted to pick list options.	Changed to conform to the established naming conventions and design principles.
`TCP130/` `TCP_REMARK`	`Tour/CirculationPressure/Remarks`	Restructured	Field renamed. Moved to a dedicated element.	A dedicated Remarks element allows for more flexibility and better consistency with other comments within the ETS data.

TRP140 Record – REDUCED PUMP SPEED TOUR RECORD

V2.2 Record/ Field	V3.0 Element/ Attribute	Change Type	Change Details	Reason and Related Issues
`TRP140/` `TRP_PRESSURE`	`Tour/ReducedPumpSpeeds/ReducedPumpSpeed/` `Pressure`	Restructured	Field renamed. Multiple reduced speed pressures can be recorded.	Allows multiple reduced pump speeds to be recorded.

TRP140/ TRP_PRESSURE_UOM	Tour/ReducedPumpSpeeds/ReducedPumpSpeed/ Pressure/ uom	Restructured	Field renamed. Entries now available from pick list options.	Changed to conform to the established naming conventions and design principles.
TRP140/ TRP_STROKES	Tour/ReducedPumpSpeeds/ReducedPumpSpeed/ StrokesPerMinute	Restructured	Field renamed. Multiple reduced speed SPM can be recorded.	Allows multiple reduced pump speeds to be recorded.
TRP140/ TRP_DEPTH	Tour/ReducedPumpSpeeds/ReducedPumpSpeed/ Depth	Restructured	Field renamed. Multiple reduced speed depths can be recorded.	Allows multiple reduced pump speeds to be recorded.
TRP140/ TRP_DEPTH_UOM	Tour/ReducedPumpSpeeds/ReducedPumpSpeed/ Depth/ uom	Restructured	Field renamed. Entries now available from pick list options.	Changed to conform to the established naming conventions and design principles.
TRP140/ TRP_PUMP_NO	Tour/ReducedPumpSpeeds/ReducedPumpSpeed/ pumpNo	Restructured	Field renamed.	Changed to conform to the established naming conventions.

TDS150 Record – DEVIATION SURVEY TOUR RECORD

V2.2 Record/ Field	V3.0 Element/ Attribute	Change Type	Change Details	Reason and Related Issues
	Tour/DeviationSurveys/ DeviationSurvey/Time	Added	Field added.	Added to improve data analysis.
TDS150/ TDS_DEPTH	Tour/DeviationSurveys/ DeviationSurvey/Depth	Renamed	Field renamed.	Changed to conform to the established naming conventions.
TDS150/ TDS_DEPTH_UOM	Tour/DeviationSurveys/ DeviationSurvey/Depth/ uom	Modified	Field renamed. Entries now available from pick list options.	Changed to conform to the established naming conventions and design principles.

TDS150/ TDS_DEVIATION	Tour/DeviationSurveys/ DeviationSurvey/Deviation	Renamed	Field renamed.	Changed to conform to the established naming conventions.
TDS150/ TDS_DIRECTION	Tour/DeviationSurveys/ DeviationSurvey/Direction	Renamed	Field renamed.	Changed to conform to the established naming conventions.
TDS150/ TDS_SURVEY_TYPE	Tour/DeviationSurveys/ DeviationSurvey/SurveyType	Renamed	Field renamed.	Changed to conform to the established naming conventions.

TTL160 Record – TIME LOG TOUR RECORD

V2.2 Record/ Field	V3.0 Element/ Attribute	Change Type	Change Details	Reason and Related Issues
TTL160/ TTL_FROM_TIME	Tour/TimeLogs/TimeLog/FromTime	Modified	Field renamed.	Changed to conform to the established naming conventions and design principles.
TTL160/ TTL_TO_TIME	Tour/TimeLogs/TimeLog/ToTime	Modified	Field renamed.	Changed to conform to the established naming conventions and design principles.
TTL160/ TTL_ELAPSED_TIME		Deleted	Field deleted.	Deleted calculated field to conform to established design principles.
TTL160/ TTL_CODE_NO	Tour/TimeLogs/TimeLog/TimeCodeNo	Modified	Field renamed. Entries now restricted to pick list options.	Changed to conform to the established naming conventions and design principles.
TTL160/ TTL_DETAILS	Tour/TimeLogs/TimeLog/Detail	Renamed	Field renamed.	Changed to conform to the established naming conventions.

TDI170 Record – TOUR DETAIL INFORMATION TOUR RECORD

V2.2 Record/ Field	V3.0 Element/ Attribute	Change Type	Change Details	Reason and Related Issues
TDI170/ TDI_DRILLER_SIGNATURE	Tour/DrillerSignature	Renamed	Field renamed.	Changed to conform to the established naming conventions.
	DayTour/Equipment/Boilers/ Boiler/BoilerNo	Added	Field added.	Added to uniquely identify boilers.
	DayTour/Equipment/Boilers/ Boiler/Make	Added	Field added.	Added to meet common equipment/rental data requirements.
	DayTour/Equipment/Boilers/ Boiler/Model	Added	Field added.	Added to meet common equipment/rental data requirements.
	DayTour/Equipment/Boilers/ Boiler/Provider	Added	Field added.	Added to meet common equipment/rental data requirements.
	DayTour/Equipment/Boilers/ Boiler/ExpenseOf	Added	Field added.	Added to meet common equipment/rental data requirements.
	DayTour/Equipment/Boilers/ Boiler/RentalCompany	Added	Field added.	Added to meet common equipment/rental data requirements.
	DayTour/Equipment/Boilers/ Boiler/SerialNo	Added	Field added.	Added to meet common equipment/rental data requirements.
TDI170/ TDI_BOILER_HRS_RAN	DayTour/Equipment/Boilers/ Boiler/HoursRun	Restructured	Now associated with a boiler. Field length now 4 digits with up to 2 decimal places.	Changed to group boiler information together.
TDI170/ TDI_BOILER_PH	DayTour/Equipment/Boilers/	Restructured	Now associated with a boiler.	Changed to group boiler information together.

	`Boiler/BoilerPh`			
`TDI170/` `  TDI_BOILER_STACK_TEMP`	`DayTour/Equipment/Boilers/` `Boiler/StackTemp`	Restructured	Now associated with a boiler.	Changed to group boiler information together.

`TDI170/`
`  TDI_BOILER_STACK_TEMP_UOM`
	`DayTour/Equipment/Boilers/`
	`Boiler/StackTemp/`
	`    uom`
		Restructured	Now associated with a boiler. Entries now available from pick list options.	Changed to group boiler information together.

`TDI170/` `  TDI_MAX_HOOKLOAD`	`Tour/MaxHookload`	Modified	Field renamed. Field now optional. Field length now 10 digits with up to 5 decimal places.	Changed to conform to the established naming conventions and design principles.
`TDI170/` `  TDI_MAX_HOOKLOAD_UOM`	`Tour/MaxHookLoad/` `    uom`	Modified	Field renamed. Entries now available from pick list options.	Changed to conform to the established naming conventions and design principles.
`TDI170/` `  TDI_SAFETY_TOPIC`	`Tour/SafetyTopic`	Renamed	Field renamed.	Changed to conform to the established naming conventions.
`TDI170/` `  TDI_MACP`	`Tour/Macp`	Renamed	Field renamed. Field now optional.	Changed to conform to the established naming conventions.
`TDI170/` `  TDI_MACP_UOM`	`Tour/Macp/` `    uom`	Modified	Field renamed. Entries now available from pick list options.	Changed to conform to the established naming conventions and design principles.
`TDI170/` `  TDI_BOILER2_HRS_RAN`	`DayTour/Equipment/Boilers/` `Boiler/HoursRun`	Restructured	Now associated with a boiler. Field length now 4 digits with up to 2 decimal places.	Changed to group boiler information together.
`TDI170/` `  TDI_BOILER2_PH`	`DayTour/Equipment/Boilers/` `Boiler/BoilerPh`	Restructured	Now associated with a boiler.	Changed to group boiler information together.

| TDI170/
TDI_BOILER2_STACK_TEMP | DayTour/Equipment/Boilers/
Boiler/StackTemp | Restructured | Now associated with a boiler. | Changed to group boiler information together. |

TLN175 Record – TIME LOG NOTES TOUR RECORD

V2.2 Record/ Field	V3.0 Element/ Attribute	Change Type	Change Details	Reason and Related Issues
TLN175/ TLN_NOTES	Tour/TimeLogNotes/TimeLogNote	Renamed	Field renamed.	Changed to conform to the established naming conventions.

TPA180 Record – PAYROLL DETAIL TOUR RECORD

V2.2 Record/ Field	V3.0 Element/ Attribute	Change Type	Change Details	Reason and Related Issues
	Tour/TourPayroll/Employees/ Employee/WorkType	Added	Field added.	Added to track the type of work per employee.
TPA180/ TPA_CREW_POSITION	Tour/TourPayroll/Employees/ Employee/Position	Renamed	Field renamed. Field now 30 characters.	Changed to conform to the established naming conventions.
TPA180/ TPA_EMP_NUM	Tour/TourPayroll/Employees/ Employee/EmployeeNo	Renamed	Field renamed.	Changed to conform to the established naming conventions.
TPA180/ TPA_NAME	Tour/TourPayroll/Employees/ Employee/Name	Renamed	Field renamed.	Changed to conform to the established naming conventions.
	Tour/TourPayroll/Employees/ Employee/Level	Added	Field added.	Added to track an employee's Rig Technician level.
	Tour/TourPayroll/Employees/ Employee/FromTime Tour/TourPayroll/Employees/ Employee/ToTime	Added	Field added.	Replaces 'Hours' to provide a better understanding of when employees were on site.

TPA180/ TPA_HRS		Deleted	Field deleted.	Deleted calculated field to conform to established design principles.
TPA180/ TPA_REMARK	Tour/TourPayroll/Employees/ Employee/Remarks	Restructured	Field renamed. Moved to a dedicated element.	A dedicated Remarks element allows for more flexibility and better consistency with other comments within the ETS data.
TPA180/ TPA_INJURY_YES TPA180/ TPA_INJURY_NO	Tour/TourPayroll/Employees/ Employee/IsInjured Tour/TourPayroll/Employees/ Employee/Initial	Restructured	Fields changed into a Boolean field and initials. Fields now optional.	Changed to be an explicit indicator of injury.
	Tour/TourPayroll/Employees/ Employee/IsDriver	Added	Field added.	Added to signify that an employee was a driver on the tour
	Tour/TourPayroll/Employees/ Employee/IsTD4	Added	Field added.	Added to signify that a TD4 has been collected from this employee.
TPA180/ TPA_SUBSISTENCE	Tour/TourPayroll/Employees/ Employee/Subsistence	Modified	Field renamed. Data type now Boolean.	Field retained for historical purposes only.

TPI190 Record – PAYROLL INFORMATION TOUR RECORD

V2.2 Record/ Field	V3.0 Element/ Attribute	Change Type	Change Details	Reason and Related Issues
TPI190/ TPI_RATE_SCHEDULE	Tour/TourPayroll/MudAllowance Tour/TourPayroll/Employees/ Employee/WorkType	Restructured	Regular and Repair Rates now assigned per employee using work type.	Invert rate schedule renamed to a more meaningful "mud allowance". A work type per employee allows them to be paid different rates.

TPI190/ TPI_CREW_SAFETY_DAYS	Tour/TourPayroll/SafetyDaysOfCrew	Modified	Field renamed. Field length now 4 digits.	Changed to conform to the established naming conventions and design principles.
TPI190/ TPI_PAY_REMARK1_TITLE	Tour/TourPayroll/Remarks/ Remark	Restructured	Field renamed. Moved into a recurring element.	Allows flexibility to add multiple payroll remarks. Separate Title and Data values were deemed unnecessary.
TPI190/ TPI_PAY_REMARK1_DATA	Tour/TourPayroll/Remarks/ Remark	Restructured	Field renamed. Field now 100 characters. Moved into a recurring element.	Allows flexibility to add multiple payroll remarks. Separate Title and Data values were deemed unnecessary.
TPI190/ TPI_PAY_REMARK2_TITLE	Tour/TourPayroll/Remarks/ Remark	Restructured	Field renamed. Moved into a recurring element.	Allows flexibility to add multiple payroll remarks. Separate Title and Data values were deemed unnecessary.
TPI190/ TPI_PAY_REMARK2_DATA	Tour/TourPayroll/Remarks/ Remark	Restructured	Field renamed. Moved into a recurring element.	Allows flexibility to add multiple payroll remarks. Separate Title and Data values were deemed unnecessary.
TPI190/ TPA_CV_DRIVER_A	Tour/TourPayroll/CrewVehicleDriver1	Renamed.	Field renamed.	Field retained for historical purposes only. Employees now have an

				IsDriver indicator.
TPI190/ TPA_CV_DRIVER_B	Tour/TourPayroll/CrewVehicleDriver2	Renamed.	Field renamed.	Field retained for historical purposes only. Employees now have an IsDriver indicator.

TKE140 Record – KEY WELL EVENTS

V2.2 Record/ Field	V3.0 Element/ Attribute	Change Type	Change Details	Reason and Related Issues
TKE140/ TKE_EVENT	Tour/WellEvents/ WellEvent/Description	Modified	Field renamed. Maximum length is now 255.	Changed to conform to the established naming conventions.
TKE140/ TKE_DATE		Deleted	Field deleted.	The field is redundant as the date attribute of the enclosing DayTours element would record the date of the event.
TKE140/ TKE_TIME	Tour/WellEvents/ WellEvent/Time	Modified	Field renamed.	Changed to conform to the established naming conventions and design principles.
	Tour/WellEvents/ WellEvent/EventNo	Added	Field added.	Added to record the event code.
TKE140/ TKE_DEPTH	Tour/WellEvents/ WellEvent/Depth	Renamed	Field renamed.	Changed to conform to the established naming conventions.
TKE140/ TKE_DEPTH_UOM	Tour/WellEvents/ WellEvent/Depth/ uom	Modified	Field renamed. Entries now available from pick list options.	Changed to conform to the established naming conventions and design principles.

New Information

The following tables detail the information added to ETS Version 3.0 that was not supported in ETS Version 2.2.

Implementation-Specific Information

V3.0 Element	Change Details	Reason and Related Issues
ETS/Others	Add a facility to record implementation-specific information for a file.	Specific implementations may require their own data that is not defined by the standard.
WellTour/Others	Add a facility to record implementation-specific information for a well.	Specific implementations may require their own data that is not defined by the standard.
DayTour/Others	Add a facility to record implementation-specific information for a day.	Specific implementations may require their own data that is not defined by the standard.
Tour/Others	Add a facility to record implementation-specific information for a tour.	Specific implementations may require their own data that is not defined by the standard.

Audit Trail

V3.0 Element	Change Details	Reason and Related Issues
WellTour/Changes	Capture an audit trail to record a log of changes to ETS information.	A history of changes helps to resolve errors and discrepancies in the data and established processes.

Sheet Revision

V3.0 Element	Change Details	Reason and Related Issues
DayTour/Revision	Capture the sheet revision explicitly in its own field.	The sheet revision was only captured implicitly as part of the file name and sheet serial number. Added to explicitly track revisions and allow generation of sheet serial numbers.

Coil Tubing

V3.0 Element	Change Details	Reason and Related Issues
`DayTour/Tubular/Coils`	Capture details of coil tubing.	There was no previous support for recording coil tubing.

Equipment/Service Details

V3.0 Element	Change Details	Reason and Related Issues
`DayTour/Equipment/EquipmentOrServices/ EquipmentOrService/Make`	Capture the make of the equipment.	Added to provide additional detail regarding equipment and services.
`DayTour/Equipment/EquipmentOrServices/ EquipmentOrService/Model`	Capture the model of the equipment.	Added to provide additional detail regarding equipment and services.
`DayTour/Equipment/EquipmentOrServices/ EquipmentOrService/Provider`	Capture the provider of the equipment/service.	Added to provide additional detail regarding equipment and services.
`DayTour/Equipment/EquipmentOrServices/ EquipmentOrService/ExpenseOf`	Capture who is paying for the use of the equipment/service.	Added to provide additional detail regarding equipment and services.
`DayTour/Equipment/EquipmentOrServices/ EquipmentOrService/RentalCompany`	Capture the name of the rental company if the equipment is rented.	Added to provide additional detail regarding equipment and services.
`DayTour/Equipment/EquipmentOrServices/ EquipmentOrService/SerialNo`	Capture the serial number of the equipment.	Added to provide additional detail regarding equipment and services.
`DayTour/Equipment/EquipmentOrServices/ RentalOrService/Usage`	Capture usage other than just total hours.	Added to provide additional detail regarding equipment and services.
`DayTour/Equipment/EquipmentOrServices/ EquipmentOrService/Quantity`	Capture the quantity on hand.	Added to provide additional detail regarding equipment and services.
`DayTour/Equipment/EquipmentOrServices/ EquipmentOrService/QuantityUsed`	Capture the quantity used.	Added to provide additional detail regarding equipment and services.
`DayTour/Equipment/EquipmentOrServices/ EquipmentOrService/Remarks`	Capture general text associated with a equipment/service.	Added to provide additional detail regarding equipment and services.

Boiler Details

V3.0 Element	Change Details	Reason and Related Issues
`DayTour/Equipment/Boilers/ Boiler/BoilerNo`	Capture a unique identifier of the boiler.	Added to provide additional detail regarding boilers.
`DayTour/Equipment/Boilers/ Boiler/Make`	Capture the make of the boiler.	Added to provide additional detail regarding boilers.
`DayTour/Equipment/Boilers/ Boiler/Model`	Capture the model of the boiler.	Added to provide additional detail regarding boilers.
`DayTour/Equipment/Boilers/ Boiler/Provider`	Capture the provider of the boiler.	Added to provide additional detail regarding boilers.
`DayTour/Equipment/Boilers/ Boiler/ExpenseOf`	Capture who is paying for the use of the boiler.	Added to provide additional detail regarding boilers.
`DayTour/Equipment/Boilers/ Boiler/RentalCompany`	Capture the name of the rental company if the boiler is rented.	Added to provide additional detail regarding boilers.
`DayTour/Equipment/Boilers/ Boiler/SerialNo`	Capture the serial number of the boiler.	Added to provide additional detail regarding boilers.

Shale Shaker Screens

V3.0 Element	Change Details	Reason and Related Issues
`DayTour/Equipment/ShaleShakers/ ShaleShaker/Screens/ Screen/IsScreenChanged`	Capture whether each specific screen was changed.	Added to provide more specific detail regarding the usage of shale shaker screens.
`DayTour/Equipment/ShaleShakers/ ShaleShaker/Screens/ Screen/IsNew`	Capture whether each specific screen is new.	Added to provide more specific detail regarding the usage of shale shaker screens.

Mud Pump Details

V3.0 Element	Change Details	Reason and Related Issues
`DayTour/Equipment/MudPumps/ MudPump/Provider`	Capture the provider of the pump.	Added to provide additional detail regarding the mud pumps.
`DayTour/Equipment/MudPumps/ MudPump/ExpenseOf`	Capture who is paying for the use of the pump.	Added to provide additional detail regarding the mud pumps.
`DayTour/Equipment/MudPumps/ MudPump/RentalCompany`	Capture the name of the rental company if the pump is rented.	Added to provide additional detail regarding the mud pumps.
`DayTour/Equipment/MudPumps/ MudPump/SerialNo`	Capture the serial number of the pump.	Added to provide additional detail regarding the mud pumps.
`DayTour/Equipment/MudPumps/ MudPump/HoursRun`	Capture the total number of hours of the day of pump operation.	Added to provide additional detail regarding the mud pumps.

Drill Bit Details

V3.0 Element	Change Details	Reason and Related Issues
`DayTour/Equipment/Bits/ Bit/CumulativeHoursRun`	Capture the cumulative hours of bit usage.	Added to provide additional detail regarding the drill bits and help track bit wear.

Drilling Assembly

V3.0 Element	Change Details	Reason and Related Issues
`Tour/DrillingAssemblys`	Capture more than one drilling assembly per tour.	Recurring element allows the recording of more than one drilling assembly per tour.
`Tour/DrillingAssemblys/DrillingAssembly/ BHAComponents/BHAComponent/InsideDiameter`	Capture the minimum inside diameter of each BHA component.	Added to provide additional detail regarding the drill string.

Mud Record

V3.0 Element	Change Details	Reason and Related Issues
`Tour/MudRecord/MudSamples/ MudSample/PVT`	Capture the total volume of drilling fluid in the active system.	Added to provide additional detail regarding the mud.

Reduced Pump Speed

V3.0 Element	Change Details	Reason and Related Issues
`Tour/ReducedPumpSpeeds`	Capture more than one instance of reduced pump speed per tour or the values per pump.	Recurring element allows the recording of more than one instance of reduces pump speed per tour or the values per pump.

Deviation Survey Details

V3.0 Element	Change Details	Reason and Related Issues
`Tour/DeviationSurveys/ DeviationSurvey/Time`	Capture the time when the deviation survey was taken.	Added to improve data analysis.

Payroll Information

V3.0 Element	Change Details	Reason and Related Issues
`DayTour/DayPayroll/IsTD4`	Allow rig manager to indicate whether TD4's are required and have been completed.	Added to facilitate confirming TD4's when required.
`Tour/TourPayroll/Employees/ Employee/WorkType`	Capture the type of work being performed.	Added to help determine the appropriate rate of pay.
`Tour/TourPayroll/Employees/ Employee/Level`	Capture the employee's rig tech level.	Added to help determine the appropriate rate of pay.
`Tour/TourPayroll/Employees/ Employee/FromTime` `Tour/TourPayroll/Employees/ Employee/ToTime`	Capture from and to times when an employee is working instead of just the total hours.	Capturing from and to times per employee allows a better way to indicate situations where someone does not work a full tour, starts work before a tour or works past the end of a tour.

`Tour/TourPayroll/Employees/Employee/IsDriver`	Capture whether an employee is a driver of a vehicle.	Added to better indicate actual drivers.
`Tour/TourPayroll/Employees/Employee/IsTD4`	Allow each employee to indicate whether a TD4 was completed.	Added to facilitate confirming TD4's when required.

APPENDIX D – VERSION 3.0 TO 3.0.1 CHANGE LOG

This appendix provides the details of how ETS Version 3.0 was changed to become ETS Version 3.0.1.

ETS Version

The ETS/etsVersion attribute has been changed to require a value of "3.0.1" to specifically indicate the ETS version.

Element Ordering

ETS Version 3.0 restricted elements to be in a specific order due to the use of the `xsd:sequence` element throughout the XML Schemas (XSD files). This constraint has been removed in ETS Version 3.0.1. The `xsd:all` element is now used where possible so that there is no longer a fixed ordering to the elements in an ETS Version 3.0.1 file.

This change was made to allow more flexibility in future versions of the ETS standard. However, existing ETS 3.0 files still require a fixed order to their elements.

In summary:

ETS Version 3.0 Files	
File Generation	<u>MUST</u> write elements in the order defined by the XSD files in order to be valid.
File Validation	Validation against the XSD files enforces an order to the XML elements.
File Reading	May or may not expect a particular order to the elements.

ETS Version 3.0.1 Files	
File Generation	Can write the elements in a determinable or undeterminable order.
File Validation	Validation against the XSD files does not enforce an order to the XML elements.
File Reading	<u>MUST NOT</u> expect a particular order to the elements.

Boilers

Changed the DayTour/Equipment/Boilers/Boiler element:

- BoilerNo is now a required element.
- Removed HoursRun, BoilerPh, StackTemp and TourId elements.

Added new Tour/Boilers/Boiler element:

- Contains BoilerNo, HoursRun, BoilerPh and StackTemp elements.

Mud Pumps

Changed the DayTour/Equipment/MudPumps/MudPump element:

- pumpId attribute is now a required attribute.
- Removed HoursRun and TourId elements.

Changed Tour/CirculationPressure/CirculationPumps/CirculationPump element:

- Added HoursRun element.

Hole Drag

Changed the Tour/HoleCondition element:

- Replaced the HoleDrag element with HoleDragUp and HoleDragDown elements.

Bit Classification Codes

Changed the DayTour/Equipment/Bits/Bit element:

- IADCCode1 and IADCCode4 elements allow either a digit from 1 to 8 or a letter from A to Z.
- The value of IADCCode1 or IADCCode4 may be a letter but not both.

Time Code Pick List

The Time Code pick list used by the Tour/TimeLogs/TimeLog/TimeCodeNo element has been updated. See Appendix A for the list of Time Code values.

Signature Rules

The signature policy has been documented in Appendix B.

Edit Permissions

The operator editing policy has been documented in Appendix B.

APPENDIX E – VERSION 3.0.1 TO 3.0.2 CHANGE LOG

This appendix provides the details of how ETS Version 3.0.1 was changed to become ETS Version 3.0.2.

ETS Version

The ETS/etsVersion attribute has been changed to require a value of "3.0.2" to specifically indicate the ETS version.

BitCondition

Changed the DayTour/Equipment/Bits/Bit/BitCondition element:

- CsT1 has been renamed to CsTI (meaning Cutting structure Teeth Inner)
- CsT0 has been renamed to CsTO (meaning Cutting structure Teeth Outer)

Pressure Values

The data type used for pressure values has been changed from xsd:decimal (size 8.2) to xsd:nonNegativeInteger (size 6.0). This changes the data type of the following elements:

> Tour/Macp
>
> Tour/CirculationPressure/Pressure
>
> Tour/ReducedPumpSpeeds/ReducedPumpSpeed/Pressure

Shaker Screens

Changed the DayTour/Equipment/ShaleShakers/ShaleShaker/Screens/Screen element to be able to distinguish between more than 3 shale shaker screens as follows:

- The Position element now stores a positive integer where 1 refers to the top screen, 2 the second screen and so on.

Drill Pipe Singles

Changed the Tour/DrillingAssemblys/DrillingAssembly element to allow for more than 99 drill pipe singles as follows:

- The size of the SinglesCount element has been changed from 2.0 to 3.0.

Time Log Notes

Changed the Tour/TimeLogNotes element:

- The size of the TimeLogNote element has been increased from 80 to 1000.

Event Code Pick List

The Event Code pick list used by the Tour/WellEvents/WellEvent/EventNo element has been updated to include drill mousehole and drill rathole events. See Appendix A for the list of Event Code values.

Signature Rules and Edit Permissions

The policies documented in Appendix B have been revised.

APPENDIX F – VERSION 3.0.2 TO 3.0.3 CHANGE LOG

This appendix provides the details of how ETS Version 3.0.2 was changed to become ETS Version 3.0.3.

ETS Version

The ETS/etsVersion attribute has been changed to require a value of "3.0.3" to specifically indicate the ETS version.

Rig Id

The size of the WellTour/Rig/RigId element has been increased from 4 to 10.

Kelly Down

The definition of the Tour/DrillingAssemblys/DrillingAssembly/KellyDown element has been changed to allow negative values.

Work Type Pick List

The Work Type pick list used by the Tour/TourPayroll/Employees/Employee/WorkType element has been updated to include Directional Services. See Appendix A for the list of Work Type values.

APPENDIX G – VERSION 3.0.3 TO 3.0.4 CHANGE LOG

This appendix provides the details of how ETS Version 3.0.3 was changed to become ETS Version 3.0.4.

ETS Version

The ETS/etsVersion attribute has been changed to require a value of "3.0.4" to specifically indicate the ETS version.

Time Log Detail

The size of the Tour/TimeLogs/TimeLog/Detail element has been increased from 255 to 4000.

Casing Category Pick List

The Casing Category pick list used by the DayTour/Tubular/Casings/Casing/Category element has been updated to include Conductor. See Appendix A for the list of Casing Category values.

APPENDIX H – VERSION 3.0.4 SAMPLE ETS FILE

```xml
<?xml version="1.0" encoding="UTF-8"?>
<ETS xmlns="http://www.caodc.ca/ETS/v3" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:schemaLocation="http://www.caodc.ca/ETS/v3 ETS v3 4.xsd"
  fileDateTime="2008-07-21T16:00:00-07:00" etsVersion="3.0.4"
  application="ETS_Generator" applicationRelease="v1.0">
 <!-- November 2011 -->
 <!-- This is an example ETS file used to illustrate the format. -->
 <!-- It is not meant to be a complete realistic example. -->
 <Remarks>
  <Remark>file comments</Remark>
 </Remarks>
 <WellTours>
  <WellTour>
   <LicenseNo>123456789</LicenseNo>
   <WellName>AlphaBit CAODC 5-24-46-10</WellName>
   <SurfaceLocation type="DLS">05-24-046-10 W4M</SurfaceLocation>
   <UniqueWellId>00/05-24-046-10W4/00</UniqueWellId>
   <SpudDateTime>2008-07-20T00:15:00-07:00</SpudDateTime>
   <JobNo>MB300400</JobNo>
   <AfeNo>AB345123</AfeNo>
   <WellType>VERT</WellType>
   <IsReentry>false</IsReentry>
   <KBHeight uom="m">4.2</KBHeight>
   <Rig>
    <RigId>4</RigId>
    <Province>AB</Province>
    <SafetyDaysOfRig>250</SafetyDaysOfRig>
   </Rig>
   <Contractor>
    <ContractorId>0ABC</ContractorId>
    <Name>MegaByte Drilling</Name>
   </Contractor>
   <Operator>
    <Name>AlphaBit Resources</Name>
   </Operator>
   <DayTours>
    <DayTour>
     <Date>2008-07-20-07:00</Date>
     <Revision>A</Revision>
     <SheetNo>1</SheetNo>
     <ContractorRep>William Nelson</ContractorRep>
     <ContractorSigned>false</ContractorSigned>
     <OperatorRep>Grant Brooks</OperatorRep>
     <OperatorSigned>false</OperatorSigned>
     <OperatorChecks>
      <OperatorCheck>
       <CheckNo>1 - DAILY WALK AROUND INSPECTION</CheckNo>
       <OperatorInitial>GB</OperatorInitial>
       <ContractorInitial>WN</ContractorInitial>
      </OperatorCheck>
      <OperatorCheck>
       <CheckNo>2 - DETAILED WEEKLY INSPECTION</CheckNo>
      </OperatorCheck>
      <OperatorCheck>
       <CheckNo>3 - H2S SIGNS POSTED</CheckNo>
       <OperatorInitial>GB</OperatorInitial>
       <ContractorInitial>WN</ContractorInitial>
      </OperatorCheck>
      <OperatorCheck>
       <CheckNo>4 - WELL LICENSE AND STICK DIAGRAM POSTED</CheckNo>
       <OperatorInitial>GB</OperatorInitial>
       <ContractorInitial>WN</ContractorInitial>
      </OperatorCheck>
      <OperatorCheck>
       <CheckNo>5 - FLARE LINES STAKED</CheckNo>
      </OperatorCheck>
      <OperatorCheck>
       <CheckNo>6 - BOP DRILLS PERFORMED</CheckNo>
```

```
      </OperatorCheck>
      <OperatorCheck>
        <CheckNo>7 - VISUALLY INSPECT BOP'S</CheckNo>
      </OperatorCheck>
    </OperatorChecks>
    <ContractorChecks>
      <ContractorCheck>
        <CheckNo>1 - RIG SITE HEALTH AND SAFETY MEETING</CheckNo>
        <ContractorInitial>GB</ContractorInitial>
      </ContractorCheck>
      <ContractorCheck>
        <CheckNo>2 - CAODC RIG SAFETY INSPECTION CHECKLIST</CheckNo>
        <ContractorInitial>GB</ContractorInitial>
      </ContractorCheck>
      <ContractorCheck>
        <CheckNo>3 - MAST INSPECTION BEFORE RAISING OR LOWERING</CheckNo>
      </ContractorCheck>
      <ContractorCheck>
        <CheckNo>4 - CROWN SAVER CHECKED</CheckNo>
      </ContractorCheck>
      <ContractorCheck>
        <CheckNo>5 - MOTOR KILLS CHECKED</CheckNo>
      </ContractorCheck>
    </ContractorChecks>
    <FuelAt800>
      <RigFuel uom="l">650.25</RigFuel>
      <BoilerFuel uom="l">250</BoilerFuel>
      <OperatorConsumption uom="l">500</OperatorConsumption>
    </FuelAt800>
    <Weather>
      <Time>10:15:00-07:00</Time>
      <Temperature uom="C">-11.5</Temperature>
      <Condition>FOG</Condition>
      <WindDirection>N</WindDirection>
      <WindStrength>CALM</WindStrength>
      <RoadCondition>FAIR</RoadCondition>
    </Weather>
    <Tubular>
      <Casings>
        <Casing>
          <Category>SURFACE</Category>
          <Make>Algoma</Make>
          <Grade>K55</Grade>
          <OutsideDiameter>219.1</OutsideDiameter>
          <InsideDiameter>202.26</InsideDiameter>
          <LinearMass>35.6</LinearMass>
          <JointsCount>32</JointsCount>
          <TotalLength uom="m">435.36</TotalLength>
          <KBToCasingHead>5.02</KBToCasingHead>
          <KBToCasingBottom>433.5</KBToCasingBottom>
        </Casing>
      </Casings>
      <DrillPipes>
        <DrillPipe>
          <Category>DP</Category>
          <Grade>E</Grade>
          <OutsideDiameter uom="mm">114</OutsideDiameter>
          <InsideDiameter uom="mm">82.6</InsideDiameter>
          <LinearMass uom="kg/m">24.7</LinearMass>
          <JointsCount>250</JointsCount>
          <ToolJointOutsideDiameter uom="mm">156</ToolJointOutsideDiameter>
          <TypeThread>4-1/2 XH</TypeThread>
        </DrillPipe>
      </DrillPipes>
    </Tubular>
    <Equipment>
      <EquipmentOrServices>
        <EquipmentOrService>
          <Description>Top Drive</Description>
          <Make>Top Drives Inc</Make>
          <Model>A Line</Model>
```

```xml
    <Provider>CONTRACTOR</Provider>
    <ExpenseOf>OPERATOR</ExpenseOf>
    <SerialNo>ATD00001</SerialNo>
    <Usage uom="hours">8</Usage>
    <Quantity>1</Quantity>
    <QuantityUsed>1</QuantityUsed>
   </EquipmentOrService>
 </EquipmentOrServices>
 <Boilers>
  <Boiler>
   <BoilerNo>1</BoilerNo>
   <Make>BoilersAreUs</Make>
   <Provider>CONTRACTOR</Provider>
   <ExpenseOf>CONTRACTOR</ExpenseOf>
   <RentalCompany>BoilersToGo</RentalCompany>
  </Boiler>
 </Boilers>
 <ShaleShakers>
  <ShaleShaker>
   <ShakerNo>1</ShakerNo>
   <Make>Derrick</Make>
   <Model>FLC 503</Model>
   <Screens>
    <Screen>
     <Position>1</Position>
     <IsScreenChanged>false</IsScreenChanged>
     <IsNew>false</IsNew>
    </Screen>
    <Screen>
     <Position>2</Position>
     <IsScreenChanged>false</IsScreenChanged>
     <IsNew>false</IsNew>
    </Screen>
    <Screen>
     <Position>3</Position>
     <IsScreenChanged>false</IsScreenChanged>
     <IsNew>false</IsNew>
    </Screen>
   </Screens>
  </ShaleShaker>
 </ShaleShakers>
 <MudPumps>
  <MudPump pumpNo="1">
   <Make>EMSCO</Make>
   <Model>F800</Model>
   <Provider>CONTRACTOR</Provider>
   <ExpenseOf>OPERATOR</ExpenseOf>
   <StrokeLength uom="mm">229</StrokeLength>
   <PumpStyle>TRIPLEX</PumpStyle>
   <Remarks>
    <Remark>pump comments</Remark>
   </Remarks>
  </MudPump>
  <MudPump pumpNo="2">
   <Make>EMSCO</Make>
   <Model>F800</Model>
   <Provider>CONTRACTOR</Provider>
   <ExpenseOf>OPERATOR</ExpenseOf>
   <StrokeLength uom="mm">229</StrokeLength>
   <PumpStyle>TRIPLEX</PumpStyle>
   <Remarks>
    <Remark>pump comments</Remark>
   </Remarks>
  </MudPump>
 </MudPumps>
 <Bits>
  <Bit>
   <BitNo>1A</BitNo>
   <Size uom="mm">222</Size>
   <IADCCode1>3</IADCCode1>
   <IADCCode2>4</IADCCode2>
```

```xml
        <IADCCode3>2</IADCCode3>
        <IADCCode4>B</IADCCode4>
        <Manufacturer>Reed</Manufacturer>
        <BitType>HP51</BitType>
        <SerialNo>AR7Z32-9</SerialNo>
        <JetsCount>3</JetsCount>
        <BitJets>
         <BitJet>
          <OrificeDiameter>8.7</OrificeDiameter>
         </BitJet>
         <BitJet>
          <OrificeDiameter>8.7</OrificeDiameter>
         </BitJet>
         <BitJet>
          <OrificeDiameter>8.7</OrificeDiameter>
         </BitJet>
        </BitJets>
        <DepthIn uom="m">1850</DepthIn>
        <DepthOut uom="m">2019</DepthOut>
        <CumulativeHoursRun>24</CumulativeHoursRun>
        <EntryDate>2008-07-19-07:00</EntryDate>
        <BitCondition>
         <CsTI>2</CsTI>
         <CsTO>3</CsTO>
         <CsMdc>BT</CsMdc>
         <CsLoc>A</CsLoc>
         <Bearing>E</Bearing>
         <Gage uom="mm">0</Gage>
         <Odc>NO</Odc>
         <ReasonPulled>CP</ReasonPulled>
        </BitCondition>
        <TourId>1</TourId>
       </Bit>
      </Bits>
     </Equipment>
     <DayPayroll>
      <Camp>NONE</Camp>
      <IsTD4>true</IsTD4>
     </DayPayroll>
     <Tours>
      <Tour tourId="1">
       <StartTime>2008-07-20T00:00:00-07:00</StartTime>
       <EndTime>2008-07-20T12:00:00-07:00</EndTime>
       <DrillerSignature>J Smith</DrillerSignature>
       <MaxHookload>70</MaxHookload>
       <SafetyTopic>None</SafetyTopic>
       <Macp>5800</Macp>
       <DrillingAssemblys>
        <DrillingAssembly>
         <StandsCount>65</StandsCount>
         <StandsLength>1842.73</StandsLength>
         <SinglesCount>2</SinglesCount>
         <SinglesLength>19.27</SinglesLength>
         <KellyDown>6.5</KellyDown>
         <WeightOfDrillCollar uom="1000 daN">21</WeightOfDrillCollar>
         <WeightOfString uom="1000 daN">58.5</WeightOfString>
         <BHAComponents>
          <BHAComponent>
           <PiecesCount>1</PiecesCount>
           <Description>BIT</Description>
           <OutsideDiameter uom="mm">200</OutsideDiameter>
           <Length uom="m">0.35</Length>
          </BHAComponent>
          <BHAComponent>
           <PiecesCount>15</PiecesCount>
           <Description>D.C.</Description>
           <OutsideDiameter uom="mm">179</OutsideDiameter>
           <Length uom="m">136.54</Length>
          </BHAComponent>
         </BHAComponents>
        </DrillingAssembly>
```

```xml
    </DrillingAssemblys>
    <HoleCondition>
     <HoleDragUp uom="1000 daN">12.5</HoleDragUp>
     <HoleTorque uom="amps">7500</HoleTorque>
     <FillOnBottom uom="m">10</FillOnBottom>
    </HoleCondition>
    <MudRecord>
     <IsWaterBased>true</IsWaterBased>
     <IsOilBased>false</IsOilBased>
     <MudSystemType>Extended Gel</MudSystemType>
     <MudMaterials>
      <MudMaterial>
       <Product>Caustic Soda</Product>
       <Amount>2</Amount>
       <Unit>Sacks</Unit>
       <UnitQuantity uom="kg">22.7</UnitQuantity>
      </MudMaterial>
     </MudMaterials>
     <MudSamples>
      <MudSample>
       <Time>02:00:00-07:00</Time>
       <Density uom="kg/m3">1120</Density>
       <FunnelViscosity uom="s/l">48</FunnelViscosity>
       <WaterLoss uom="cm3">10.5</WaterLoss>
       <FluidPh>8</FluidPh>
       <Location>Shaker</Location>
       <Depth uom="m">1990</Depth>
      </MudSample>
      <MudSample>
       <Time>02:00:00-07:00</Time>
       <OtherTests>
        <OtherTest>
         <TestType>Filter Cake</TestType>
         <TestValue uom="mm">1 mm soft</TestValue>
        </OtherTest>
       </OtherTests>
       <Location>Shaker</Location>
       <Depth uom="m">1990</Depth>
      </MudSample>
     </MudSamples>
    </MudRecord>
    <SolidsControls>
     <SolidsControl>
      <EquipmentName>Centrifuge</EquipmentName>
      <HoursRun>8</HoursRun>
      <IntakeDensity uom="kg/m3">1120</IntakeDensity>
      <OverflowDensity uom="kg/m3">1080</OverflowDensity>
      <UnderflowDensity uom="kg/m3">1460</UnderflowDensity>
      <Remarks>
       <Remark>shut down for trip</Remark>
      </Remarks>
     </SolidsControl>
    </SolidsControls>
    <DrillRecords>
     <DrillRecord>
      <FromDepth uom="m">1714</FromDepth>
      <ToDepth uom="m">1810</ToDepth>
      <Activity>DRILL</Activity>
      <RotaryRpm>65</RotaryRpm>
      <WeightOnBit uom="1000 daN">16</WeightOnBit>
     </DrillRecord>
     <DrillRecord>
      <FromDepth uom="m">1810</FromDepth>
      <ToDepth uom="m">1823</ToDepth>
      <Activity>CORE</Activity>
      <RotaryRpm>80</RotaryRpm>
      <WeightOnBit uom="1000 daN">8.1</WeightOnBit>
     </DrillRecord>
    </DrillRecords>
    <CirculationPressure>
     <Pressure uom="kPa">9000</Pressure>
```

CAODC

```xml
      <CirculationPumps>
       <CirculationPump pumpNo="1">
        <LinerSize uom="mm">139</LinerSize>
        <StrokesPerMinute>120</StrokesPerMinute>
        <HoursRun>8</HoursRun>
       </CirculationPump>
      </CirculationPumps>
      <PressureType>SINGLE</PressureType>
     </CirculationPressure>
     <ReducedPumpSpeeds>
      <ReducedPumpSpeed pumpNo="1">
       <Pressure uom="kPa">3000</Pressure>
       <StrokesPerMinute>45</StrokesPerMinute>
       <Depth uom="m">1800</Depth>
      </ReducedPumpSpeed>
     </ReducedPumpSpeeds>
     <Boilers>
      <Boiler>
       <BoilerNo>1</BoilerNo>
       <HoursRun>8</HoursRun>
       <BoilerPh>11</BoilerPh>
       <StackTemp>260</StackTemp>
      </Boiler>
     </Boilers>
     <DeviationSurveys>
      <DeviationSurvey>
       <Depth uom="m">1990</Depth>
       <Deviation>0.5</Deviation>
       <Direction>115.5</Direction>
       <SurveyType>DIRECTIONAL</SurveyType>
      </DeviationSurvey>
     </DeviationSurveys>
     <TimeLogs>
      <TimeLog>
       <FromTime>2008-07-20T00:00:00-07:00</FromTime>
       <ToTime>2008-07-20T00:15:00-07:00</ToTime>
       <TimeCodeNo>7</TimeCodeNo>
       <Detail>Rig Service. Function Pipe Rams - 4 sec to close</Detail>
      </TimeLog>
      <TimeLog>
       <FromTime>2008-07-20T00:15:00-07:00</FromTime>
       <ToTime>2008-07-20T07:00:00-07:00</ToTime>
       <TimeCodeNo>2</TimeCodeNo>
       <Detail>Drill</Detail>
      </TimeLog>
      <TimeLog>
       <FromTime>2008-07-20T07:00:00-07:00</FromTime>
       <ToTime>2008-07-20T07:30:00-07:00</ToTime>
       <TimeCodeNo>10A</TimeCodeNo>
       <Detail>Survey @ 1800m</Detail>
      </TimeLog>
     </TimeLogs>
     <TourPayroll>
      <MudAllowance>false</MudAllowance>
      <SafetyDaysOfCrew>179</SafetyDaysOfCrew>
      <Employees>
       <Employee>
        <WorkType>REGULAR</WorkType>
        <Position>DRILLER</Position>
        <EmployeeNo>123456789</EmployeeNo>
        <Name>Bob Green</Name>
        <Level>RIG TECH 2</Level>
        <FromTime>2008-07-20T00:00:00-07:00</FromTime>
        <ToTime>2008-07-20T12:00:00-07:00</ToTime>
        <IsInjured>false</IsInjured>
        <IsDriver>false</IsDriver>
        <IsTD4>true</IsTD4>
       </Employee>
       <Employee>
        <WorkType>REGULAR</WorkType>
        <Position>DERRICKMAN</Position>
```

```xml
            <EmployeeNo>555465843</EmployeeNo>
            <Name>Brad White</Name>
            <FromTime>2008-07-20T00:00:00-07:00</FromTime>
            <ToTime>2008-07-20T12:00:00-07:00</ToTime>
            <IsInjured>false</IsInjured>
            <IsDriver>false</IsDriver>
            <IsTD4>true</IsTD4>
          </Employee>
          <Employee>
            <WorkType>REGULAR</WorkType>
            <Position>MOTORMAN</Position>
            <EmployeeNo>321528664</EmployeeNo>
            <Name>Trevor Brown</Name>
            <FromTime>2008-07-20T00:00:00-07:00</FromTime>
            <ToTime>2008-07-20T12:00:00-07:00</ToTime>
            <IsInjured>false</IsInjured>
            <IsDriver>false</IsDriver>
            <IsTD4>true</IsTD4>
          </Employee>
         </Employees>
        </TourPayroll>
        <WellEvents>
         <WellEvent>
           <Time>00:15:00-07:00</Time>
           <EventNo>SPUD</EventNo>
           <Description>Spud</Description>
         </WellEvent>
        </WellEvents>
       </Tour>
      </Tours>
    </DayTour>
   </DayTours>
   <Changes>
    <Change>
     <At>2008-07-20T10:20:24-07:00</At>
     <By>kce</By>
     <Item>WellTour[1]/SpudDateTime</Item>
     <Operation>NEW</Operation>
     <To>2008-07-20T00:15:00-07:00</To>
    </Change>
    <Change>
     <At>2008-07-20T10:20:26-07:00</At>
     <By>kce</By>
     <Item>Tour[1]/Macp</Item>
     <Operation>UPDATE</Operation>
     <TourDate>2008-07-20-07:00</TourDate>
     <TourId>1</TourId>
     <From>5000</From>
     <To>5800</To>
    </Change>
    <Change>
     <At>2008-07-20T10:20:27-07:00</At>
     <By>kce</By>
     <Item>WellTour[1]/RigReleaseDateTime</Item>
     <Operation>DELETE</Operation>
     <From>2008-07-19T22:45:00-07:00</From>
    </Change>
   </Changes>
  </WellTour>
 </WellTours>
 <Others>
  <Other id="DrillCo">addition of <Proprietary>some values</Proprietary> go here</Other>
 </Others>
</ETS>
```