

# Scope of Work

## Background and General

Oil India Limited (hereinafter referred to as OIL) is a premier national oil company engaged in the business of Exploration, Production & Transportation of Crude Oil & Natural Gas. Its operations are largely based in the north-eastern part of India particularly in Assam and Arunachal Pradesh but extended its activities in different parts of India and abroad.

Over the last 50 years OIL is involved in developing and production activities of various oilfields and in the process a numbers of production installations have been set up at different locations to facilitate production of oil and gas from these areas. Some of these installations are also modified time to time to match the field development activities of the areas.. However, engineering information for the aforesaid installations could not be kept/ maintained in the proper form so as to access easily at the time of need. Considering this, OIL is now planning to create all the engineering information of these installations in different formats using the latest software tools. This will in turn help us to carry out various risk analysis studies in taking appropriate measures to minimize loses in case of any disaster situation. Different Installations are OCS, EPS, GCS, FGS and Gas Take of point.

<b>Installation</b>	<b>Nos</b>
Oil Collecting Station- (OCS)	19
Early Production Setup - (EPS)	01
Gas Compressor Station - (GCS)	15
Field Gas Gathering Station- (FGS)	03
FGS & Gas Off Take Point	01
Gas Off Take Point	01
<b>Total</b>	<b>40</b>

“OIL Duliajan has requirement Total solutions in Engg & GIS, for Survey of 40 nos of installations for Creation & Digitization of Piping, Plan, Cable Route Layouts & General Arrangement Drawings (GAD), Intelligent Smart PFD, Intelligent Smart P&ID, Intelligent SLD to the As-Built status and preparation & digitization of Standard Operating Procedure (SOP) and O&M procedures, HAZOP & QRA (Quantative Risk Analysis) and Mines Key Plan and Mines Surface Plans preparation based on satellite data as per OMR'1984”.

**A. Technical Specifications: - Engineering Solutions with Services  
As-Built & As-operation status Layout Drgs, GADs, PFDs, P&IDs, SLDs, Cable Layout, Earthing System Diagrams and  
SOP & O&M Manuals**

Sl.	Item	Scale & Size	Nos.	Job involvement	Remarks
1	PFD	A2 Size	40	Survey, Data collection, Creation, Digitization, Conversion to Intelligent Format	Any available data/drawings with OIL will be provided (not updated to As-built status)
2	P&ID	A2 Size	200	Survey, Data collection, Creation, Digitization, Conversion to Intelligent Format	Creation, Digitization, Conversion to Intelligent Format
3	Piping & Layout Drawing	1:300, A0 Size	40	Survey, Data collection, Creation, Digitization	Any available data/drawings with OIL will be provided (not updated to As-built status)
4	GAD	1:100, A0 Size	290	Survey, Data collection, Creation, Digitization	Creation, Digitization
5	SLD	A2 Size	40	Survey, Data collection, Creation, Digitization	Available Old Hand sketches/ drgs will be provided (not updated to As-built status)
6	Cable Layout with Cable Schedule	1:300, A0 Size	40	Survey, Data collection, Creation, Digitization	Creation, Digitization
7	Earthing system Diagrams	A2 Size	40	Survey, Data collection, Creation, Digitization	Available Old Hand sketches/ drgs will be provided (not updated to As-built status)
8	SOP, O&M Manual	Lump sum	40	Data collection, Creation, Digitization	Available manuals/diagrams will be provided

## HAZOP and Quantative Risk Analysis Study

Sl.	Item	No. of Installations
1	HAZOP Study	40
2	Quantative Risk Analysis	4

### 1.0 As built PFD/ P &ID Drawings using Smart Plant P& ID.

- Survey, collection of input data from field installations, input verification & creation of 200 Nos. P&IDs and 40 Nos. PFDs, A2 size drawing and mark the site verified data on the drawings.
- The conversion work shall be carried out using Latest version of Intergraph's Smart Software Suit or its equivalent software running on Microsoft Windows OS environment with Oracle database as a backend RDBMS (10g)
- Customization of P&ID symbols as required for creation of P&IDs /PFDs in Intelligent Format.
- Intelligent P&IDs in intelligent format will fully reflect the P&IDs and plant items contained therein (equipment, pipe lines, piping components, instrument components and signal lines etc.) along with all relevant attribution information shown on the face of original P&IDs.
- All face value information which appear on the face of input P&IDs will be captured as attribute information
- Adding intelligence to digitized drawings by attaching all related information to the graphic components of Latest version of Intergraph's Smart Software Suit or its equivalent software. *Attachments may be limited to 50 (fifty) per P&ID.* Total attachments will be  $(200+40) \times 50 = 12,000$ .
- Data collection & Scanning as detailed below for attachment to Smart Plant P&ID drawings
  - a) Equipment,
  - b) Equipment components (including electrical equipment),
  - c) Piping, piping components,
  - d) Process data,
  - e) Material specifications,
  - f) Information about the project / plant, items of P&IDs
  - g) Equipment and Piping specifications
  - h) Equipment Fabrication Drawing
  - i) Valve and Instrument

Specs,

j) Maintenance History

k) Vendor Details

l) Any other miscellaneous data/documents like Purchase Orders, Inspection charts etc.

## 2.0 As built Piping & Plant Layout and General Arrangement drawings in AutoCAD Format

- The bidder will do the survey by certified Surveyors and Draftsman and create the as built Sketches/ Drawings as input for creation of AutoCAD drawing for all the units.
- Piping & plant Layout drawings 40 nos A0 Size Drawing (Scale 1:300) to the As-Built status with detail data to the scale as per OIL's standard and conversion into AutoCAD format..
- Survey, collection of input data from field installations, input verification & creation of 290 Nos. A0 Size plant General Arrangement Drawings (GADs) Scale of 1:100) to the As-Built status with detail plant engineering information and conversion into AutoCAD format.

## 3.0 As built Electrical, Cable Layout, Drawings using SmartPlant Electrical

- The bidder will study the existing facilities of all installations, collect input data and create the SLDs, Cable Layout with Cable Schedule and Earthing system Diagrams. Mostly all the power cables/ control cables are laid through underground accessible trenches. Job also includes OFC layouts in some installations.
- Input verification & creation of 40 Nos of Single Line Diagrams (SLDs) & 40 Nos. of Earthing System Diagrams in A2 size using Smart Plant Electrical.
- Input verification & creation of 40 nos. of Cable Layout Drawings with Cable Schedule (1:300, A0 size) and conversion into AutoCAD format.

## 4.0 Standard Operation and Maintenance Manual

- Collection of manual / input data for preparation and digitization of SOP and O&M procedures to the As-built status.
- Creation & Updation of Operating Manuals and Standard Operation and Maintenance Procedures (SOMPs) to As Built status including Conversion to Acrobat format. Operating and Start-up if it is not available it will be created using the guidelines of OIL. The Operation Manual will be prepared on standard template to be designed in consultation with OIL personnel and standard templates will be used for preparation of different type of documents /drawings.

The contents of the Operating Manuals will include:

a)Objective of the manual

b)Introduction to the field

c)Description of the installation

d)Process flow description

- e) Operating instructions
- f) Special instructions
- g) Stand-alone facility operating manuals
- h) Condition monitoring requirement for rotary equipment
- i) Safety checklist (daily, weekly, monthly, yearly etc.)
- j) Emergency preparedness
- k) Standard Operating and Maintenance Procedure for Well Operations
- l) Standard Operating and Maintenance Procedure for Installations.

The operating manual will also include the following documents:

1. Electrical Control Room Layout, Instrument Control Room Layout.
2. Hazardous Area Classification Drawings (*Zone Classification*).
3. PFD and P&ID of the installation
4. Summary of equipment detail sheets
5. Integrated Oil / Gas Pipeline Network
6. Single Line and Earthing System Diagram
7. Cable Layout (electrical) and Circuit diagrams.
8. Optical Fiber Layout diagram.

5.0 All the associated jobs like permanent physical tagging of all equipment/instruments as per system generated IDs and other related civil jobs such as scaffolding etc. required for access to equipments, valves, instruments are also in the scope of the job. Permanent writing of piping/equipment IDs will be carried out by painting/stenciling on the body of the piping/equipment and also by embossing on Aluminum Tag attached to the piping/equipment.

*The Bidder shall note that the jobs under this project are to be done by the firm on lump-sum turnkey basis.*

6.0 Scanning of other manuals/documents and data sheets of installations.

This includes scanning of other manuals/documents and data sheets of installations.

The scope of work consists of scanning documents of installations. It contains print material of A4/A3 size. The documents are to be scanned for developing updated operating manuals and data sheet of A3 & A4 size and reproduction are to be done. The manuals are to be typed wherever required.

Following is the tentative distribution of sheets for each installation type:

- 1 – 600 sheets per GCS
- 2 – 600 sheets per OCS
- 3 – 400 sheets per EPS
- 4 – 400 sheets per FGS
- 5 – 400 sheets per OTP

## 7.0 HAZOP study for 40 Installations

- A Hazop involves a team of personnel who are familiar with the design and operation of the plant, is led by a Moderator and recorded by a HAZOP secretary. Vendor would provide Moderator, HAZOP secretary & Other Engineers for carrying out the same. The Moderator would be familiar with the industry and shall have working knowledge of the site. The secretary will be a technical person, with understating of the HAZOP Process and the industry as well as being fully conversant with the software packages to be used to record the minutes, i.e. word and /or excel.
- It is suggested to use the Smart Plant Process Safety Software of Intergraph's HAZID or equivalent software for carrying out above mentioned detail study from the software inputs.
- Vendor personnel & OIL representatives of the following disciplines will carryout the HAZOP study jointly:
  - Operations - Site Operation In-Charge / Installation Manager
  - Maintenance Engineer
  - Instrumentation Engineer
  - Safety
- During the HAZOP each P& ID will be considered in turn Section wise with defined nodes. An appropriate team member will give a brief explanation of the function of the lines to be reviewed indicating the modified sections forming the subject of the HAZOP where appropriate. The Moderator will then go through the standard guidewords used to prompt discussions on the possible causes and consequences of deviation from normal operations and to identify any operational or safety implications associated with these deviations. The HAZOP secretary will record the discussions directly onto computer. The HAZOP session would take place for a period of 90 days. Session would commence during the normal office hours.
- At the end of each day the minutes and draft issue of the actions and recommendations generated during the session would be tabled. This would avoid generation of along list of tasks at the end of the HAZOP study.
- The HAZOP analysis will be carried out at Vendor's office and a draft report would be prepared locally and submitted as per the agreed schedule after the end of the HAZOP sessions for comments.
- Comments will be incorporated into the draft report and the final report shall be issued after agreement on comments with OIL.
- Hazop of the new and / or modified P &IDs of the specified section only which shall ensure that all interfaces with new equipments have been included.

## 8.0 QRA (Quantative Risk Analysis) Study for 4 Installations

- Quantative Risk Analysis includes identification of Hazards, Selection of Scenarios, Effects consequences, Likelihood Estimation & Risk Summation.

Same to be conducted as per International accepted guide Lines.

- It is suggested to use the latest QRA solutions by the vendor for carrying out the same.
- Vendor Personnel and team of the safety, process & operation personnel shall be involved in conducting this Study.

OIL shall provide following minimum inputs for the above-mentioned scope of work. This list is indicative and not exhaustive.

- Hard copy & AutoCAD Version format of any available Drawings & Documents.
- Legend Sheets.
- OIL shall familiarized the bidder with the field equipment, instrumentation etc. at various locations and provide access to all the manuals, old available layout drawings etc. existing in different department and sections. Client's representative shall accompany for the familiarization of Plant

#### **B. Technical Specifications: - GIS Services**

<b>Mines Key Plan and Mines Surface Plans as per OMR'1984, Regulation-9</b>			
Sl.	Item	Scale & Size	Nos.
1	Preparation and updation of Mines Key Plan maps with available legacy data, survey inputs and Cartosat 1 satellite data, GIS creation & Digitization as required statutorily (OMR'1984, Regulation-9).	1:50,000, A0	3
2	Preparation and updation of Mines Surface Plan maps with available legacy data, survey inputs and Cartosat 1 satellite data, GIS creation & Digitization as required statutorily (OMR'1984, Regulation-9).	1:20,000, A0	10

The scope under this activity includes the building of intelligent spatial data to establish the latest and accurate mines key plans and surface plans. The necessary input maps and details will be furnished by OIL. The following are the components of the scope listed in detail.

- Procurement of Cartosat 1 satellite imagery for the two seasons (pre and post monsoon) from NRSC for the OIL operational area which is approximately 16,000 sq.km
- Processing of images and geo-referencing of the satellite imagery with the help of collected Ground Control Points

- Incorporation of DGPS survey point Well Locations of Oil & GAS Installations as provided by the OIL
- Digital Mapping on 1:20,000 scale for various spatial layers
- Providing detailed guide maps of each installation covering installation boundary and its associated wells to OIL along with other layers such as road/rail network roads, water bodies, permanent structures etc on an appropriate scale.
- Incorporation of gas flow lines in consultation with OIL
- Preparation of surface plan maps on 1:20,000 scale and key plans and mining lease area maps on 1:50,000 scale.

OIL will provide the necessary input data and associated information either in the form of paper maps and the project data as listed below:

- Existing Mines key plan
- Existing Mines Surface Area Plan
- SOI Topo sheets of the AOI for reference
- Necessary authorization Letter to the successful bidder for procuring Cartosat 1 Satellite imagery from NRSC, Hyderabad
- DGPS Survey data of all the well locations available with OIL
- Available non-spatial data.

The detailed technical specification for Preparation and updation of Mines Key Plan and Mines Surface Plan maps with available legacy data, survey inputs and Cartosat 1 satellite data, GIS creation & Digitization as required statutorily (OMR'1984, Regulation-9).

- a) Procurement of high-resolution data from NRSC shall be done according to the DOS regulations. Restricted areas, if any, will need the prior clearance. The same process will be applicable for the SOI Topo sheets. The successful bidder shall obtain necessary letters from OIL for this purpose.
- b) The successful bidder shall procure Cartosat 1 satellite imagery for the two seasons (pre and post monsoon) from NRSC for the OIL operational area of approximately 16,000 sq.km. The exact coordinates of the area will be made available to the successful bidder upon contract award.
- c) The date of pass of pre and post monsoon satellite data shall be chosen preferably within the contract execution period. If data is not available for this period, the latest archival data available with NRSC shall be used for mapping.
- d) Topo sheets of the Area of interest available with OIL may be used for reference purpose only at OIL, Duliajan only.
- e) Satellite imageries shall be processed using the image processing techniques such as image corrections, image registration and enhancement so that the image is qualified for the necessary extraction of the geographical features such as water bodies/gestures in the mining areas, road/rail network, permanent structures and group gathering

stations. Satellite imagery shall be geo-referenced with reference to the SOI maps and DGPS of well locations data available with OIL.

- f) Necessary vector data layers as indicated below shall be created using the satellite imagery as a reference.
- Railway lines, Public roads
  - Forest Area
  - Habitation areas (Outline only)
  - Water bodies nearby installations from two seasons data
  - Rivers & water courses within the mining areas etc
- g) The detailed guide maps of each installation covering the installation boundary and its associated wells along with other important layers such as road/rail network roads, water bodies, permanent structures etc on an appropriate scale shall be provided to OIL. The respective installation manager would use these maps for demarcating the water injection line, gas injection line, flow line etc based on their knowledge. The maps duly demarcated with gas flow lines by the installation manager shall be converted into digital format and final GIS maps to be submitted as per requirement. The bidder's representative shall be available at site for coordinating with the installation managers for completing the task.
- h) Quality processes will be implemented at each step of preparing the GIS data layers according to the prevailing ISO standards in the system.
- i) The map finishing will be done as per the requirement.
- j) Plotting of maps at Mine key plan at 1:50,000 scales & Mine surface plan at 1:20,000 scale shall be provided.
- k) The digital deliverables along with two season's satellite data along with one license of user friendly desktop GIS software shall be provided to view and prepare the maps.

### C. Software

In order to execute the scope as explained at Section – A & B above, the successful bidder shall have to supply the latest version of the software.

- The bidder will provide software for P&ID creation and editing & viewing of A0, A1, A2, A3 size drawings & documents
- The bidder will supply **One-licensed copy of software for creation of Intelligent PFD, P&ID, SLD etc** in order to allow read or save drawings in un-intelligent dwgs. Or dxf. format with relevant accessories for viewing, creation and editing purpose. - 1 No.
- The bidder will supply for Viewing software for Intelligent P&IDs & Plant Data –

20 Nos

Server based license (20 concurrent user licenses). Software should allow P&IDs to be viewed using Microsoft Internet Explorer at client end. Intelligent P&ID creation software should not make use of proprietary database and should only make use of commonly available RDBMS platform to store information as attribute information so as to facilitate extraction of attribute information pertinent to these graphic items in the P&ID conformance to design standard in the form of design rule check.

- The bidder will supply One Licensed copy software for Hazop Smart Plant Process Safety through the Data of Smart Plant Intelligent PID.- 1 No.
- The bidder will supply one licensed copy of the software for QRA (Quantative Risk Analysis) for assisting the QRA Study.- 1 No.
- The bidder will supply for Markup and correction of Intelligent PID electronically by the viewers – SmartPlant Markup-SPM-5 Nos
- The bidder will supply Smart Sketch for drafting/correction of layout, GAD drgs – SmartSketch-SS-5 Nos
- The bidder will supply SmartPlant Electrical for creation/Viewing of Intelligent SLDs – SPEI – 1 no.
- The bidders will supply TWO Nos of 5 users Oracle 10g to store data as a backend data base – 2 Nos.
- **Desktop GIS Analysis software ONE No - should have following capabilities**
  - Supports Windows Vista
  - Capability to have multiple access to various GIS data in their different native formats like Intergraph, ArcInfo, Arc View, Map Info, CAD data like Microstation and AutoCAD without any translation
  - Capability to generate GIS data in Oracle Spatial Cartridge format
  - Integration of all primary industry raster formats: CIT, COT, CRL, RGB, RLE, TG4, BMP, GIF, TIF, PCX, CAL, HRF, IGS, JPG
  - ODBC compliance enabling interface with DBMS like Access, FoxPro, etc.
  - Can be connected to OGC, WMS, WFS, GML, I /CAD Map Server, Writes multiple Geotiff tags, Creates .tfw
  - On-the-fly projection system transformation
  - Provision for definition of projection systems and geodetic datum like Indian (1954, 1960, 1975), WGS84, etc. And Also Support all industries standard Datum's
  - Integration of multiple GIS databases into a common projection system without the need of any translation
  - The software support Images with more than 8 bits per band (11, 16, 24, 33)
  - Smart feature-based digitization making the elements clean the first time

- Smart data editing and validation tools like
  - Precision data input
  - Auto snap and break on existing features
  - Smart snap to features
  - Integrated vector / raster snaps
  - Smart data editing
  - Partial Delete
  - Extend to Intersections
  - Reverse Direction
  - Dynamic queued editing
  - Dynamic Segmentation LRS Precision Location
- Automatic Vector breaking utility – when a line feature is snapped into a second line feature, the second feature should automatically be split into two separate features
- Capability to maintain coincident geometry – a new polygon should be captured simply by selecting an existing polygon to digitize the common boundary thereby ensuring no slivers or gaps between adjacent area features like parcels.
- Capability to create area features from line work both interactively and automatically.
- Calculate spatial Difference by selecting two Features and subtracting one from the other.
- Define Joins from inside the software to non graphic tables of the database
- Capability to filter out data on the basis of View, Fence or a defined polygon.
- Legend Prioritization
- Direct Support to the Microstation Cell Symbols
- Category Wise Display
- Geocoding and Georeferencing
- Raster Registration
- Vector to Vector Registration
- Integrated raster/vector environment
- Spatial and Attribute analysis including building on the output of previous queries
- Output in different formats like Microstation Design Files, GIS formats like Intergraph GeoMedia, ESRI, MapInfo, OGC XML & GML
- Raster output in form of Geotiff.
- Separate windows for map data and database and layouts.
- Capability to implement the legend as a separate or dockable window.
- Buffer zone creation
- New Search option - Search Edit by queue, Find Geocode Address, Create Searches By Attributes
- Thematic mapping tools
- Facility to exchange the GIS data with other Windows-based applications for generation of reports, charts, etc.
- Simple and easy-to-use built-in tools to customize the user-interface in terms of menu items, etc.
- File compression to .ddc format

- Open customization tools like VB, VC++, Delphi, Power Builder, etc. along with online tutorial on how to customize with some sample commands.
- Data compression to .ddc format
- Plotting to the scale.
- Batch plotting facility
- Auto cartographic grid generation.
- Symbolization and Patterning for map publishing
- Supporting to the OGC standard formats
- Cartographic and Reference Grid generation

Bidder is required to provide proper Backup of Proper Operating Internet security system.

Thus following software as a minimum will be required:

SL. No.	Description	Qty. (Nos.)
1.	Software for Creation & Editing of Intelligent drawings	1
2.	Viewing software for Intelligent drawings & Plant data - SPE	20
3.	Smart Sketch or equivalent	5
4.	SmartPlant Mark up or equivalent	20
5.	Backend Database (5 user license) Oracle	2
6.	Smart Plant Electrical or equivalent	1
7.	SmartPlant Process Safety or equivalent	1
8	Desktop GIS Analysis software	1

Training will be conducted by the bidder either at their place or at OIL, Duliajan for all the supplied software's for users. The bidder shall submit the Training Schedule along with the bid.

In addition to the Training of supplied software training on using of the deliverables will be given to the users for utilization of deliverables of the project at the time of handing over of deliverables at Duliajan.

#### **D. Hardware**

The following are the requirement related to hardware:

- Application & Data Base Server For Smart Plant P&I, SPEI & SPPS -1
- Database Server windows 2003 advanced server with 25 clients Access-1.
- Online UPS Capable backup- 1 no.
- A4 size Color Laser printer
- A3 Color scanner
- A0 Color plotter
- Laptops

## Hardware Specifications

The bidder shall provide the following hardware with following minimum configuration for the project:

(The list is indicative only; the bidder shall provide all the necessary hardware for successful completion of the project)

The Server (Application and Database) recommended for the entire project.

Sr No	Product description	Qty
<b>1</b>	<b>Server For Smart Plant P &amp; ID ,SP Electrical, SP PS</b>	
	Quad Core Xeon with 2.3 GHz with 4 MB L2 cache, 8 GB ECC DDR2 SDRAM, 3 x 146 GB Hot plug SAS HDD with RAID controller, CD Writer/ DVD Combo drive, Integrated Dual Gigabit NIC, Integrated graphics, 17" TFT monitor, USB Keyboard, USB Optical mouse, Redundant Power Supply, 3 year warranty	1
	Windows 2008 standard server OLP NL	1
	Windows 2008 server CAL	23
<b>2</b>	<b>Client Workstation For SPE, Markup Plus &amp; Smart Sketch - 23 nos.</b>	
	Core2 Duo 2.4 GHz with 2 MB L2 cache, 1 GB DDR2 SDRAM, 80 GB SATA HDD, DVD ROM, ATI Radeon PCI Express 16 graphics card with 256 MB memory, Integrated Gigabit NIC, USB keyboard, USB Optical scroll mouse, Windows Vista Business with downgrade to Windows XPP, 17" TFT monitor, 3 year warranty	1
<b>3</b>	<b>RDBMS -1 no.</b>	
	Oracle 10g Standard Edition with 5 user	7
	Software Upgrade	7
	Support & Service	7
	Media	1
<b>4</b>	<b>A3 Scanner -1 no.</b>	
	Umax A3 scanner with RGB S/w, USB interface, 1 yr. warranty	1
<b>5</b>	<b>A4 Color Laser Printer - 2 nos.</b>	
	HP Colorjet printer with 10 ppm speed, 64 MB RAM, 600 dpi, USB, 1 year warranty	2
<b>6</b>	<b>A0 color plotter -1 no.</b>	
	HP Design Jet A0 plotter with 1200 x 600 dpi resolution, 32 MB RAM, Roll feed with cutter, Parallel, USB interface with 1 year warranty	1
<b>7</b>	Laptops with all the required applications / software	6

**Software and Hardware for the project are considered to be compatible to SAP. Vendor must confirm that Drawings and Manuals prepared by them will integrate with SAP R3 Programme. The bidder shall also confirm and submit documentary evidence that the offered solution is satisfactorily working with SAP R3 at least at one location in similar E&P sector in India.**

## **E. Installation & Commissioning**

Installation, commissioning and testing of the digitized drawings at OIL designated sites by publishing the drawing data on the intranet server for clients to access over the LAN.

The intelligent attributes and attachments should also be published without the necessity of parent applications at client site. On installation at site the clients should be able to view, redline the P&ID, access the attached information and print reports such as line lists, equipment list, instrument list, MTOs etc., using the internet explorer browser only and without having the P&ID software at the client end. Any change in the P&ID or drawings at the server should be dynamically reflected at the browser client.

These P&IDs once converted has to be published over the local Intranet for Viewing, Red-Lining Access from any platform. This will provide a centralized system for maintaining P&ID an engineering document frequently required during the Plant Maintenance with all the Revisions and Change Management duly stored in the same file as History Functionally avoiding confusions on latest copies and versions.

The system should have a Search Engine where a Particular Instrument Tag or a Piping Component can be located in the P&ID. The system should be able to generate reports like the Valve MTO, especially items MTO, Instrument Tag List, etc. The system should allow updation of P&ID from a central location so that a centralized control over updation activities can be maintained. The updated P&ID should be available for viewing from different locations in the plant as soon as the Updation is made. There should be a provision for checking the user access for Updation of the P&ID. The acquaintance for the system and especially for editing and viewing are to provide to the persons at site. The quantity indicated are the approximate estimated quantities solely for the purpose of indicating the nature, order and magnitude of work are to be carried out by the bidder. The exact quantum of work however may vary. The unit rate will be considered for any additional or lesser work.

## **F. Deliverables for Drawings:**

The bidder shall Supply updated Drawings as given below:-

- a) Six Hard Copies for all PFD,P&ID,GAD,SLD & Layout Drgs
- b) Six Soft Copies In CD/DVD
- c) Six sets of Color Prints Of OSMPs
- d) Six sets of Hazop Reports
- e) Six sets of QRA reports
- f) Six Sets - Mines Key Plan Maps in 1:50,000 Scale in A0 Paper Size
- g) Six Sets - Mines Surface Plan Maps in 1:20,000 Scale in A0 Paper Size

## **G. Annual Maintenance**

The vendor will carryout all maintenance and up gradation of the system and software's for a period of three (3) years initially.

Bidder at his own cost shall arrange the spare parts. Bidder shall carry out any other related job like editing of intelligent P&ID etc during the AMC period.

Bidder will post one full time service engineer at OIL Duliajan against the

warranty / AMC period.

Bidder will have to provide Telephone facilities to his Engineer to facilitate immediate contact.

Bidder will have to arrange its own transport facility for the maintenance engineer to attend to the maintenance calls and for movement of spares.

Bidder will have to arrange its own accommodation for its engineer/technician at Duliajan.

Bidder will have to maintain all hardware and software installed against this project along with interface, network and power cables.

No cannibalization of any equipment will be permitted to carry out the maintenance services.

Bidder will have to follow the preventive maintenance schedule given by OIL, for each item, strictly throughout the period of contract.

Bidder has to arrange their own office space for its Engineers at Duliajan.

Bidder shall have to provide his own maintenance equipment and other test and measuring equipment to his engineer for carrying out the maintenance as and when required.

OIL shall provide access to the locations where the contracted equipment is installed so as to facilitate the maintenance of the same. The access will also be provided to the manuals for the purpose if available with OIL for maintenance of the contracted systems and software.

## **H. Schedule**

The bidder shall execute the assignment in 24 months from the date of the receipt of all relevant inputs, scope of work document along with a Techno-Commercially clear purchase order (Effective date of Contract).

## **I. Quality Criteria**

OIL team shall inspect/examine the P&IDs selected on Random sampling Method for QA from Each installation & check against the input drawings/Sketches certified by OIL. Should any defect be found the whole lot shall be returned to the bidder for corrections and subsequently OIL shall sample the corrected drawings.

***Important Note: The bidder shall consider all the expenditure / costs for the ancillary jobs which may be required to be carried for successful completion of the project. The bidder are also advised to consider while estimating, the element of tasks which are not covered here but are essential for successful completion and commissioning of the project.***