



**RESOLUTION OF THE GOVERNING BODY OF THE  
THREE AFFILIATED TRIBES OF THE  
FORT BERTHOLD INDIAN RESERVATION**

***A Resolution Entitled, "Requirement for High Definition Video Surveillance on Tribal Well Sites on the Fort Berthold Indian Reservation"***

- WHEREAS,** This Nation having accepted the Indian Reorganization Act of June 18, 1934, and the authority under said Act and having adopted a Constitution and By-Laws pursuant to said Act; and
- WHEREAS,** The Constitution of the Three Affiliated Tribe generally authorizes and empowers the Tribal Business Council to engage in activities on behalf of and in the interest of the welfare and benefit of the Tribes and of the enrolled members thereof; and
- WHEREAS,** Article III of the Constitution of the Three Affiliated Tribes provides that the Tribal Business Council is the governing body of the Tribes; and
- WHEREAS,** Article VI, Section 5 (I) of the Constitution of the Three Affiliated Tribes provides that the Tribal Business Council has the power to adopt resolutions regulating the procedure of the Tribal Business Council and other Tribal agencies; and
- WHEREAS,** Article VI, Section 3 of the Constitution grants the Tribal Business Council all legislative authority necessary for the purpose of exercising the jurisdiction granted by Article I of the Constitution; and
- WHEREAS,** Article VI, Section 5 (J) of the Constitution of the Three Affiliated Tribes provides that the Tribal Business Council has the power to protect and preserve the property, wildlife and natural resources of the Tribes; and
- WHEREAS,** There are numerous oil wells operating on the Fort Berthold Indian Reservation as a result of the exploration and production of crude oil and other minerals within the Bakken Formation; and
- WHEREAS,** The property and natural resources of the Tribes are threatened by the potential hazards inherent in the exploration and production of oil and gas and the operation of drilling rigs on the Fort Berthold Reservation and therefore the Tribal Business Council has the responsibility and authority to regulate the conduct of oil and gas exploration and production on the Reservation and provide safeguards to prevent and detect hazards that may occur; and



**WHEREAS,** The Tribal Business Council believes that in order to protect and preserve the Tribe's property and natural resources, that a tribal requirement must be adopted mandating that all Tribal (Mineral and/or Surface interest) production wells, disposal wells and all operating new, existing and future drilling rigs operating on

the Fort Berthold Reservation, install and operate constant High Definition (HD) video surveillance at each production well, disposal well and drilling rig site. The purpose of such a monitoring system is to build one consistent and standardized, high quality system that can be viewed only during the time of a discrepancy or occurrence from either a remote location or locally on-site.

**WHEREAS,** the purpose of such a monitoring system is to build a video surveillance system to create a deterrent and to help address the concerns, monitoring issues, complaints, compliance and other discrepancies that occur in the oil field industry on the Fort Berthold Indian Reservation with the requirement to have all operating drilling rigs install the specified mobile video surveillance trailers on all Tribal well sites. TAT also firmly believes that by implementing this mandate, TAT will gain better understanding of occurrences and discrepancies which will lead to preventative maintenance; and

**WHEREAS,** The Tribal Business Council passed this resolution as Resolution #11-022 on February 15<sup>th</sup>, 2011 and since that time most companies have failed to comply with the terms and requirements of the Resolution; and

**WHEREAS,** Companies that this Resolution applies to have had ample notice of the requirements set out in the Resolution including a public hearing held in May of 2011 with the opportunity to provide comments, as well as onsite demonstrations that have recently occurred; and

**WHEREAS,** due to the lack of compliance, the Tribal Council finds it is necessary to amend the resolution to add compliance measures to ensure enforcement of the Resolution.



**NOW THEREFORE BE IT RESOLVED**, that the Tribal Business Council of the Three Affiliated Tribes of the Fort Berthold Reservation, pursuant to its constitutional powers hereby adopts the following video surveillance requirements for all tribally owned production wells, disposal wells and drilling rigs operating on the Fort Berthold Indian Reservation in accordance with the following specifications:

1. The purpose of this Resolution is to implement a requirement for a high quality effective around-the-clock monitoring system on Tribal well sites (production and disposal) and drilling rigs to protect the environment, increase safety, secure assets, and meet Federal, State and Tribal regulations pertaining to the Three Affiliated Tribes and oil companies producing on the Fort Berthold Indian Reservation
2. All Tribal production and disposal wells and all operating new, existing and future drilling rigs shall be required to install and operate constant High Definition (HD) video surveillance on all well sites on the Reservation.
3. Upon commencement of drilling, the specified Mobile Video Surveillance Trailer shall be in place at all existing, new and future operating drilling rigs. Thereafter, all the Tribal wells (mineral and/or surface interest) (Production and Disposal) on the Fort Berthold Indian Reservation must have the specified permanent High Definition (HD) Video Surveillance System on all existing, new and future production and disposal sites.
4. The requirement is to have all operating drilling rigs on the Fort Berthold Indian Reservation have the specified mobile video surveillance trailers on all locations during the drilling process. Once drilling is completed and the drilling rig is relocated, the specified Mobile Video Surveillance Trailer shall remain on location until the specified permanent High Definition (HD) Video Surveillance System is installed and fully operational. This will meet the requirement of the 24-hour/7-days-a-week constant video monitoring and recording. Thereafter, all production and disposal sites are required to have the permanent system to meet this mandate. This mandate will require all Tribal production and disposal well locations to have License Plate Recognition (LPR) equipment and software to log traffic and vehicles coming in and out of sites, and build a database to be viewed by interested parties (TAT: Energy Dept., TERO, Law Enforcement, Environmental, and Natural Resource Dept.; Bureau of Indian Affairs, Oil Companies and any other relevant Agencies), only when a discrepancy occurs.



5. Oil companies shall meet the requirement of this resolution by contacting a TAT authorized vendor that meets the attached specifications required by this resolution by scheduling a time and date to meet this mandate upon the adoption and certification of this resolution. Pricing and payment terms shall be determined between the Oil Company and a TAT authorized vendor. This resolution will not affect royalties, TERO fees, future development and/or federal regulations. The Tribal Energy Department will be responsible for enforcement of the requirements set forth in this Resolution. Under no circumstance shall the Three Affiliated Tribes be responsible for any costs associated with meeting the requirements of this regulation.
6. The specifications pertaining to this resolution have been designed to implement a high quality and consistent technology backbone for current and future security needs as well as meet future production needs and concerns. The specified and required electronics insulated metal facility will allow future and further advancement to install Tank and Flow monitoring equipment on Tribal production and disposal well sites and establish one centralized location on site to be viewed locally and/or remotely by the Three Affiliated Tribes, BIA, BLM, Oil Companies and other relevant agencies. To comply with this Resolution a vendor must meet all requirements of the attached specifications adopted pursuant to this resolution.



**BE IT FURTHER RESOLVED**, that the specifications and well site requirements (Exhibit A, B & C) for the Video Monitoring Surveillance systems required by this Resolution are herewith attached to this Resolution and are by reference made a part of it.

**BE IT FINALLY RESOLVED**, that this Resolution # 11-022 is hereby amended by adding the following enforcement and compliance requirements:

1. All companies for which this resolution applies shall have thirty (30) days from the date of adoption and certification of this amended resolution to come into compliance with its requirements.
2. The Chairman of the Tribe along with the Energy Department are authorized and shall send out a Compliance Notice to all companies for which this resolution applies
3. The Tribal Energy Department and TERO Department are authorized to investigate all tribal well sites to ensure that all companies are in compliance with the requirement of this Resolution.
4. The Energy Department shall issue a notice of non-compliance to any company found to be out of compliance with the requirements of this Resolution. The notice shall give the company a fifteen (15) day period to come into compliance and shall also notify the company of the potential penalties for failure to comply within the fifteen day period.
5. Failure to come into compliance with the requirements of this Resolution shall result in the assessment of a Five Hundred (\$500) per day penalty for every day the company is found to be out of compliance.
6. In addition to the civil penalty assessed, the company may have its TERO license suspended or revoked by the TERO commission.



## **System Requirements for Resolution 11-022-VJB**

This mandate is enforced by the Three Affiliated Tribes Energy and TERO Compliance Offices and governed by the laws of the TAT. This mandate becomes effective 30 days from the adoption of this resolution. The established requirements specifications for this law are listed below.

### ❖ **Permanent High Definition Video Surveillance System Requirement**

1. Avigilon High Definition Video Surveillance Systems shall be installed permanently on all completed, existing, or new, and future tribal well sites (Production or Disposal) and/or drilling rigs on the Fort Berthold Reservation.

### ❖ **Temporary Mobile Video Surveillance System Requirements**

1. Wanco Temporary Mobile Video Surveillance Trailers shall be installed on all drilling rigs operating on the Fort Berthold Indian Reservation and shall remain on location at all times until the drilling rig is moved. This requirement is effective upon the adoption of Resolution No. 11-022-VJB.
2. Wanco Temporary Mobile Video Surveillance Trailers shall be installed on all completed tribal well sites (excluding all tribal wells completed prior to 07/01/2013) until the specified permanent video surveillance system is installed on location. These systems shall remain on location for a variation of a few days, weeks or even months, until the specified permanent video surveillance system is installed on location.

### **Mandated Minimum System Specifications**

The Three Affiliated Tribes is specifying the following minimum system requirements to achieve adequate situational awareness. Areas of concern and the overall camera and system requirements are as follows;

### ❖ **Permanent High Definition Surveillance Systems**

- **Road(s)/Entrances** – One (1) LPR Megapixel Camera & one (1) additional 5Megapixel Camera (LPR System is Required)
- **Treater Sback(s)** – Must be in clear view externally
- **Tank(s)** – all must be in clear view
- **Offload Station(s)** (Tankers must be clearly visible while extracting or pumping oil, gas and/or saltwater)
- **Pumping Unit(s)/Wellhead(s)** - Must be in clear view
- **Flare Pit(s)** - Must be in clear view
- **Panoramic** - One (1) PTZ Camera is required on permanent sites for scheduled video tours and remote control
- **Recording** - Minimum 30 Days of High Definition Recording



- **Video Quality\*** – Minimum of 40 Pixels-Per-Foot on all areas of concern - Areas of concern are; Road(s)/Entrances, Treater Shack(s), Tanks, Offload Station(s), Tankers, Pumping Unit(s), Flare Pit(s)
- **TAT Approval-** Upon the completion of installation, TAT Energy will conduct a final inspection to verify that all required specifications are met. TAT requires a minimum of 40 pixels-per-foot to ensure video quality for clear identification and documentation of activity.

\*Avigilon cameras range from 1 Megapixel to 29 Megapixels and provides a formula to determine the proper camera based on the distance and width of view as well as the height of the cameras. This formula provides adequate pixels-per-foot for each camera and lens used.

\*Note: The above specifications also pertain to locations with multiple wells on one pad. Therefore, only one system will be required for those multi-well locations, but requires additional hardware and cameras to ensure that the video quality requirements are met.

#### ❖ Temporary Mobile Video Surveillance Systems

- **Wanco Mobile Trailer** – 4 PTZ Cameras (1 Thermal), 4 IR Illuminators, Diesel Generator with health monitoring software, 30 days HD video storage 100% motion

To meet compliance please report to the Energy Office. Companies who do not meet compliance will face fines and possible loss or revocation of TERO business license.

#### Compliance Steps:

1. Complete and submit the TAT Energy Dept. compliance form(s) A, B and C to begin process.
2. Acquire monitoring systems contract with a TAT authorized vendor for each completed well site and/or drilling rig currently operating on the Fort Berthold Reservation. Future expansion and exploration well/rig sites must comply to this law, as well.
3. Gain documentation and evidence of installation, or plans of a scheduled installation with an TAT Energy Dept. authorized vendor to meet each specification under this law.
4. Provide documentation to the TAT Energy Dept. Compliance Office for evidence of compliance 30 day Deadline.

TAT Energy Department has Forms A – *Permanent System*, Form B – *Temporary Mobile System*, and Form C – *Drilling Rig Mobile System*. Forms A, B, and C must be completed promptly. Please note, compliance action must be taken within 30 days of the adoption of this amended resolution which includes installed systems, or evidence of plans for installation of systems with a TAT Energy Dept. authorized vendor contract.

Please contact a TAT Energy Dept. authorized vendor/installer if you have not already done so. More vendors may be available at a later date. All vendors must meet the TAT Energy Department vendor regulations specified by this law to become a TAT authorized vendor. Under the TERO Ordinance, Indian preference is applied.



**For More Information on Compliance:**

Compliance Office  
(701) 627-5154  
TAT Energy Department - Oil & Gas Division  
Three Affiliated Tribes - Fort Berthold Indian Reservation  
217 Main Street  
New Town, ND 58763







## Exhibit B

### THREE AFFILIATED TRIBES & FORT BERTHOLD RESERVATION OIL & GAS PERMANENT VIDEO SURVEILLANCE SYSTEM SPECIFICATIONS

The purpose of these specifications is to describe the established requirement of a permanent high definition video surveillance system which shall be installed on all existing and new tribal production and disposal well locations on the Fort Berthold Reservation. The Three Affiliated Tribes Emergency Management Team consisting of members from each of the following departments: Energy, TERO, Environmental, Emergency Management and Special Projects has developed this requirement and these specifications to standardize and ensure a consistent and quality High Definition Video Surveillance System to cover all tribal interest (mineral and surface) production and disposal wells. This system is intended to monitor, protect and preserve the property, wildlife and natural resources of the Three Affiliated Tribes against hazardous waste, oil spills, and also to detect or prevent other hazards and/or disasters that may occur. Furthermore, these specifications are designed to allow future and further advancement to install Tank and Flow monitoring (SCADA) equipment on Tribal production and disposal well sites.

#### PART 1 - GENERAL

##### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

##### 1.2 SUMMARY

- A. The work herein includes all engineering, design, labor, materials, equipment, installation, integration, programming and all other services necessary to provide Network Video Management Deployment with fully functional performance, which shall be furnished and installed by the Contractor.
- B. Video surveillance system shall be integrated with monitoring and License Plate Recognition Monitoring specified herein with an option for additional alarm and 3<sup>rd</sup> party control monitoring integration.
- C. The work shown in Contract Drawings relies upon the execution of interim work by others, and is therefore conceptual in nature. The Contractor shall validate site conditions and coordinate with owner representative (OAR) prior to determining precise allocation of communications infrastructure and location of installed equipment.



D. It is the responsibility of the TAT Authorized Vendor to ensure the equipment being bid meets the intent of these Specifications, is compatible with other equipment being bid by the vendor and any existing analog systems, can be installed at the site as required for a fully functional System, and will provide the performance required to meet these Specifications and to provide an integrated security system.

E. Some portions of this Work may be performed by the existing System maintenance or Electrical contractor. Coordinate those requirements with OAR prior to bidding.

F. JPEG2000 and H.264 Shall Be The Compression Standard.

G. Telecommunications Industry Association/Electronics Industry Association (TIA/EIA)

1. EIA-170: Electrical Performance Standards – Monochromatic Television Studio Facilities
2. EIA-310-D: Cabinets, Racks, Panels and Associated Equipment
3. TIA-568-C.2, Balanced Twisted-Pair Telecommunications Cabling and Components Standards
4. TIA-EIA-232-E: Interface Between Data Terminal Equipment and Data Circuit Terminating Equipment Employing Serial Binary Data Interchange
5. TIA/EIA-250-C: Electrical Performance for Television Transmission Systems
6. TIA/EIA-568-B: Commercial Building Telecommunications Standard

H. Underwriters Laboratories (UL)

1. UL 6: Standard for Safety for Electrical Rigid Metal Conduit – Steel
2. UL 294: Standard for Safety for Access Control System Units
3. UL 797: Standard for Safety for Electrical Metallic Tubing – Steel
4. UL 1410: Standard for Safety for TV Receivers and High Voltage Video Products
5. UL 2044: Commercial Closed Circuit Television Equipment

### 1.3 SUBMITTALS

A. Product Data: For each type of product indicated. Include dimensions and data on features, performance, electrical characteristics, ratings, and finishes.

B. Shop Drawings: For video surveillance; include plans, elevations, sections, details, and attachments to other work.

1. Functional Block Diagram: Show single-line interconnections between components for signal transmission and control. Show cable types and sizes.
2. Dimensioned plan and elevations of equipment racks, control panels, and consoles. Show access and workspace requirements.
3. UPS: Sizing calculations.
4. Point to Point Wiring Diagrams: For power, signal, and control wiring.
5. Floor/Site Plans detailing equipment locations.

C. Equipment List: Include every piece of equipment by model number, manufacturer, serial number, location, and date of original installation. Add pretesting record of each piece of



equipment, listing name of person testing, date of test, set points of adjustments, name and description of the view of preset positions, description of alarms, and description of unit output responses to an alarm.

- D. Field quality-control reports.
- E. Operation and Maintenance Data: For cameras, power supplies, infrared illuminators, monitors, network digital video recorders, network switches, and control-station components to include in emergency, operation, and maintenance manuals. In addition to items specified in Division 1 Section "Operation and Maintenance Data," include the following:
  - 1. Lists of spare parts and replacement components recommended to be stored at the site for ready access.
- F. Record Drawings:
  - 1. Provide a copy of corrected, approved shop drawings for the project, updated to show as-built condition. Include the manufacturers' brochures in the as-built documentation. Documentation shall indicate exact device locations, panel terminations, cable routes and wire numbers as tagged and color coded. Final point-to-point wiring diagrams shall be included in the as-builts.
  - 2. Update all customer record copies of full System as-built drawings and documentation. All Documents integrated into customer as-builts shall be Revision numbered and dated.
  - 3. Prepare drawings using AutoDesk AutoCAD 2000 (minimum) software. Deliver files in hard copy and electronic copies on C or DVD. Electronic copies shall be in AutoCAD .dwg format.
  - 4. All Record Drawings shall accurately reflect device and infrastructure labeling and equipment IP addresses.
- G. Training Materials: If training is conducted, provide one complete set of training materials.
- H. Contractor Qualifications: Prior to commencement of work, provide TAT Vendor qualification documents as called for in Quality Assurance section of this Specification.
- I. Warranty: All materials documenting warranty which shall be a minimum of three (3) years on all system components supported by the system manufacturer. A minimum of one (1) year warranty shall be provided on all labor and installation components.

#### 1.4 QUALITY ASSURANCE

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- B. Comply with NECA 1.
- C. Comply with NFPA 70.



- D. The specified equipment shall be products of one manufacturer (Avigilon) which has been approved by the Three Affiliated Tribes. Therefore, all primary system components for this required permanent high definition digital video monitoring system shall be Avigilon to ensure standardization and consistency for quality control purposes and also for easier system wide management.
- E. Contractor qualifications: Equipment installation shall be supervised by a qualified senior technician, Engineer or Project Engineer. TAT Authorized Contractors shall have at least ten (10) years experience installing and maintaining systems of similar size and complexity.
  - 1. The qualified individual shall have installed at least two (2) systems of similar type and size within the past five (5) years. Submit evidence of required experience if requested by TAT. Submit evidence of successful installation, owner training and maintenance for a minimum of the previous five (5) years.
  - 2. Individual shall be assigned permanently to the Project for the duration of the installation and testing period.
- F. The TAT Authorized Contractor and Installer shall be factory-authorized and trained by Avigilon and shall be factory-trained and certified to maintain/repair the System after system acceptance. The provider shall maintain a fully staffed office within two (2) hours travel time from the job site.
  - 1. At least one individual certified by the system Manufacturer (Avigilon) shall be on project site at any time work is being done.
- G. Service personnel shall have completed Avigilon certification course for equipment being serviced. Provide manufacturer signed certificates of completion or other manufacturer signed documentation showing proof of Avigilon certification.
- H. Computerized equipment shall meet 47 CFR Part 15.
- I. CCTV equipment shall meet UL performance and electrical safety requirements.

## PART 2 - PRODUCTS

### 2.2 NVMS GENERAL

- A. The Network Video Management Software (NVMS) by Avigilon shall be available as a stand-alone software offering or pre-loaded on turn-key workstations and servers running Microsoft Windows with configurable storage.
- B. The Network Video Management Software (NVMS) shall be an enterprise level software solution that shall be scalable from one client, server, and camera to hundreds of clients, servers, and cameras.
- C. The Network Video Management Software (NVMS) shall consist of server software applications and client software applications and include a web client that works within



Microsoft Internet Explorer Version 6 or later.

- D. The Network Video Management Software (NVMS) shall be available in the following languages:
- a. English
  - b. Finnish
  - c. German
  - d. Italian
  - e. Portuguese
  - f. Spanish
  - g. Swedish
- E. The Network Video Management Software (NVMS) shall include the following applications:
1. Server Software Applications
    - a. Server
    - b. Admin Tool
  2. Client Software Applications
    - a. Client (thick client and zero client versions)
    - b. Player
    - c. Camera Installation Tool
- F. The Network Video Management Software (NVMS) shall permit server and client software applications to be installed and run on both the same computer or on separate computers.
- G. The Network Video Management Software (NVMS) shall support edge based storage and processing of video and audio inputs.
- H. The Network Video Management Software (NVMS) shall support High Definition Stream Management (HDSM) architecture which includes:
1. Support for industry standard JPEG2000, MJPEG, MPEG-4, and H.264 compression formats.
  2. Support for reducing the required client bandwidth and processing power by only transmitting what is necessary to view the video stream at full quality (e.g. if a user is viewing a 16MP camera in a 1MP window then a 1MP representation of the 16MP image shall be transmitted).
- I. The Network Video Management Software (NVMS) shall support recording and management of video and audio sources including:
1. Avigilon HD IP Dome Cameras (1 – 8 Mega pixels)
  2. Avigilon HD PRO IP Cameras (8 – 29 Mega pixels)
  3. Composite video from analog cameras, PTZ domes and thermal imagers via Avigilon ENC-4P-H264 analog encoder
  4. Avigilon 1L-HD-LP and 2L-HD-LP IP LPR Cameras
  5. ACTi



6. Arecont
  7. Axis
  8. IQInvision
  9. Mobotix
  10. Panasonic
  11. Pelco
  12. Samsung
  13. Sony
  14. VideoIQ
  15. ONVIF Compliant Manufacturers
- J. The Network Video Management Software (NVMS) shall support recording and monitoring visually lossless video and maintaining the same quality in live and recorded video. Visually lossless video is defined by video that has no visible compression artifacts.
- K. The Network Video Management Software (NVMS) shall support recording and monitoring of video and audio streams from sources with bandwidth up to 90 Mbit/sec, frame rate up to 60 fps , and video resolution up to 29MP (6576x4384).
- L. The Network Video Management Software (NVMS) shall require no proprietary recording hardware, no hardware multiplexer or time-division technology for video and audio recording or monitoring.
- M. The Network Video Management Software (NVMS) shall not limit the storage capacity and shall allow for upgrades of recording capacity.
- N. The Network Video Management Software (NVMS) shall digitally sign recorded video and audio using 256-bit encryption so video can be authenticated for evidentiary purposes.
- O. The Network Video Management Software (NVMS) shall securely transmit all command and control data via TCP/IP using cryptographic keys based on SSL to prevent eavesdropping or tampering.
- P. The Network Video Management Software (NVMS) shall also be available in turn-key NVR platforms utilizing enterprise-grade servers and workstations pre-loaded with NVMS software and tested to manufacturer specifications for deployment in enterprise applications.
- Q. License Plate Recognition Module
1. The Network Video Management Software (NVMS) shall support integration with an optical character recognition based License Plate Recognition (LPR) module.
    - a. Network Video Management Software (NVMS) will provide the mechanism by which individual alarm(s) based on a pre-defined "Watch List" within the LPR



- System can be pre-selected and configured to be monitored and, in turn, trigger event driven video operations
- b. The Network Video Management Software shall include the LPR functionality
  - c. as a core part of the Network Video Management Platform to be licensed separately from the base NVMS functionality. All software for the LPR option shall be developed and maintained by the Network Video Management platform vendor and shall not be licensed from any third party entity.
  - d. The LPR Module will be fully integrated into the NVMS Search Functions to allow seamless search of events or individual vehicles based on manual character entry
  - e. The LPR Search functionality will support manual entry of wildcards as well as allow user to select percentage of confidence in result to expand or limit search parameters.
  - f. The LPR Module will support wither manual, or scheduled direct export of captured data in the NVMS "native" format, as well as common data formats like .CSV
  - g. The LPR feature will support accurate capture of license plate data at vehicle speeds up to 60 MPH
2. The LPR module shall support custom integration to third party database information
  3. The LPR Software shall be compatible with and make use of a dedicated monochrome camera module with infrared emitters rated for a specific distance. This camera package shall offer an option to mount a second Day/Night Megapixel camera in the upper portion of the same housing to enhance vehicle identification.
  4. The LPR Capture Module shall support recognition of Arabic or Roman characters
  5. The LPR Camera/IR Kit will support capture of a single lane at distances of:
    - a. 35 Feet
    - b. 50 Feet
    - c. 75 Feet
    - d. 100 Feet
  6. The LPR Camera/IR Kit will support capture of a dual lane at a distance of:
    - a. 40 Feet
- R. The Network Video Management Software (NVMS) shall be capable of being upgraded from one version to another without the having to uninstall the previous version.
- S. The Network Video Management Software (NVMS) shall automatically detect if Avigilon video source firmware is out of date with respect to the current installed software and upgrade it.
- T. The Network Video Management Software (NVMS) shall automatically detect if client application software is out of date with respect to the current installed server software and upgrade it.
- U. The Network Video Management Software (NVMS) shall run as a service configured to automatically start when the server or workstation is powered on and automatically



recover from failure or attempted tampering.

V. The Network Video Management Software (NVMS) shall allow system administration, and live and recorded video and audio monitoring all from a single client application

W. that can be located anywhere on the network.

### 2.3 SERVER CONNECTIONS

A. The Network Video Management Software (NVMS) shall automatically discover all NVMS Server instances running on computers connected to the same network as the NVMS Client.

B. The Network Video Management Software (NVMS) shall provide a search functionality to discover NVMS Server instances running on computers connected on a different network segment than the NVMS Client by using IP addresses or hostnames.

### 2.4 DEVICE CONNECTIONS

A. The Network Video Management Software (NVMS) shall automatically discover video and audio sources that are connected to the same network as the NVMS Server.

B. The Network Video Management Software (NVMS) shall provide a search functionality to discover video and audio sources that are connected on a different network segment than the NVMS Server.

C. The Network Video Management Software (NVMS) shall provide the ability to connect a video or audio source to multiple NVRs to achieve redundant recording.

D. The Network Video Management Software (NVMS) shall provide the ability to create a failover connection for a video or audio source. If the NVR that the video or audio source is connected to goes offline then the failover NVR will take over the connection.

E. The Network Video Management Software (NVMS) shall provide administration of all system connections from a single window.

F. The Network Video Management Software (NVMS) shall detect if the video or audio signal is lost and alert the system administrator.

### 2.5 SERVER SETUP

A. The Network Video Management Software (NVMS) shall provide the capability to rename all video and audio sources and NVRs.

B. The Network Video Management Software (NVMS) shall allow the customized grouping of servers, cameras, views, maps, and web pages within the system explorer.





The NVMS software will allow you to group system components by site, location, owner, role, or whatever grouping makes most sense for the particular installation.

- C. The Network Video Management Software (NVMS) shall record video and audio streams based on a recording schedule that can be defined individually for each video source. The schedule shall be created with the following parameters:
1. Recording Mode
    - a. Continuous
    - b. Motion
    - c. Alarm
    - d. Motion or Alarm
    - e. Disabled
  2. Time and Date Settings
    - a. Daily
    - b. Weekly
- D. The Network Video Management Software (NVMS) shall provide a pre-alarm and post-alarm recording option.
- E. The Network Video Management Software (NVMS) shall provide a reference frame recording option in the absence of motion or alarm events.
- F. The Network Video Management Software (NVMS) shall perform motion detection on each individual video source with adjustable sensitivity, threshold and detection zones.
- G. The Network Video Management Software (NVMS) shall provide the ability to reduce the image rate of recorded video over time as a means of increasing record time. The image rate shall be able to be reduced to one half or one quarter of the original image rate.
- H. The Network Video Management Software (NVMS) shall provide the ability to set a maximum retention time for recorded video.
- I. The Network Video Management Software (NVMS) shall authenticate users before granting access to the system. Access rights for each user shall be able to be defined individually for each user, and shall include:
1. Viewing live images
  2. Using PTZ controls
  3. Locking PTZ controls
  4. Viewing recorded images
  5. Exporting images
  6. Setting up cameras and NVRs
  7. Creating and modifying users and groups



8. Access to individual video and audio sources

- J. The Network Video Management Software (NVMS) shall provide the ability to import Windows users and use Windows credentials to authenticate users.
- K. The Network Video Management Software (NVMS) shall provide the ability to automatically take HD pictures of vehicles and export them off-site via email for easy remote viewing, archiving and management.
- L. The Network Video Management Software (NVMS) shall provide the ability to automatically capture HD License plate images and export them off-site via email for easy remote viewing, archiving and management.
- M. The Network Video Management Software (NVMS) shall provide the ability to email system administrators when an event or system health error occurs.
- N. The Network Video Management Software (NVMS) shall provide the ability to schedule backups of recorded video and audio with associated events to a local folder or mapped network drive.
- O. The Network Video Management Software (NVMS) shall maintain an event log for the following events:
  - 1. User Events
    - a. User(s) login
    - b. User(s) logout
  - 2. Device Events
    - a. Motion started
    - b. Motion ended
    - c. Alarm input activated
    - d. Alarm input deactivated
    - e. Camera disconnected unexpectedly
    - f. Video signal lost
    - g. Video signal recovered
    - h. Recording interrupted
    - i. Recording resumed
    - j. Firmware upgrade started
    - k. Firmware upgrade successful
    - l. Firmware upgrade failure
    - m. License plate watchlist match
  - 3. Application Events
    - a. Software license expired
    - b. Software license expires soon
    - c. NVMS Server started



- d. NVMS Server shutting down
  - e. NVMS Server abnormal shutdown
4. Database Events
- a. Database low disk space
  - b. Database lost
  - c. Database recovered
5. System Events
- a. Email delivery failure
  - b. Server low on resources
  - c. Network socket error
  - d. Network interface removed
  - e. LPR plug-in failure
- P. The Network Video Management Software (NVMS) shall have the capability to execute any of the following actions in response to any of the events listed above:
- 1. User Notification Actions
    - a. Display on-screen message to users
    - b. Generate a preloaded or custom audio alert
    - c. Send an email
  - 2. Monitoring Actions
    - a. Start live streaming video
  - 3. Device Actions
    - a. Reboot camera
    - b. Activate alarm output
    - c. Pulse Alarm output
  - 4. PTZ Actions
    - a. Go to preset
    - b. Run a pattern
    - c. Set auxiliary
    - d. Clear auxiliary
- Q. The Network Video Management Software (NVMS) shall provide a maintenance log and audit trail of all system errors and events.
- R. The Network Video Management Software (NVMS) shall provide the ability to define a region of an image where license plate detection is performed. Detected license plates shall be stored along with the video data.
- S. The Network Video Management Software (NVMS) shall provide the ability to create a watchlist that will be used to create events when any license plate on the watchlist is



detected in the images being analyzed.

## 2.6 DEVICE SETUP

- A. The Network Video Management Software (NVMS) shall provide the ability to enable and configure PTZ control on the RS-485 interface of a video source.
- B. The Network Video Management Software (NVMS) shall support the following list of PTZ camera protocols:
  1. American Dynamics
  2. AXSYS
  3. Ernitec
  4. Kalatel ASCII
  5. Pelco D
  6. Pelco P
- C. The Network Video Management Software (NVMS) shall provide the ability to change the network settings for a video and audio source.
- D. The Network Video Management Software (NVMS) shall provide the ability to change image quality and image rate parameters for a video source without affecting the settings on the other video sources.
- E. The Network Video Management Software (NVMS) shall provide the ability to change the exposure, iris, IR filter, focus, backlight compensation, gain, priority, and white balance settings for a video source.
- F. The Network Video Management Software (NVMS) shall provide the ability to change the image dimensions for a video source.
- G. The Network Video Management Software (NVMS) shall provide the ability to add privacy zones to a video source to block unwanted areas in the image field of view.
- H. The Network Video Management Software (NVMS) shall provide the ability to change the input and gain for an audio source.
- I. The Network Video Management Software (NVMS) shall provide the ability to link any audio source to any video source.

## 2.7 CLIENT SETUP

- A. The Network Video Management Software (NVMS) shall provide the ability to automatically log in to an NVR when using Windows Authentication.
- B. The Network Video Management Software (NVMS) shall provide the ability to save



and restore the window layout.

- C. The Network Video Management Software (NVMS) shall provide the ability to control the system using a PC keyboard or joystick.
- D. The Network Video Management Software (NVMS) shall provide the ability to import and export client settings such as maps, views, and web pages.

## 2.8 CLIENT GENERAL

- A. The Network Video Management Software (NVMS) shall support live or recorded video monitoring of 1 to 36 video streams simultaneously on a single monitor with the following possible layouts:

- 1. Full Screen
- 2. 2 x 2
- 3. 3 x 3
- 4. 4 x 4
- 5. 5 x 5
- 6. 6 x 6
- 7. 1 + 5
- 8. 1 + 7
- 9. 1 + 12
- 10. 2 + 8

- B. The Network Video Management Software (NVMS) shall support the ability to bias the displayed video to a higher frame rate or to a lower image resolution if the client network bandwidth or client processing power is insufficient to display the full frame rate and image resolution.
- C. The Network Video Management Software (NVMS) shall support the ability to display the following list of image overlays:
  - 1. Camera Name
  - 2. Camera Location
  - 3. Timestamp
  - 4. Record Indicator
  - 5. PTZ Arrows
  - 6. Motion
  - 7. License Plate
- D. The Network Video Management Software (NVMS) shall support an unlimited number of monitors for monitoring video and audio streams.
- E. The Network Video Management Software (NVMS) shall support monitoring live and recorded video and audio streams simultaneously on the same monitor.



- F. The Network Video Management Software (NVMS) shall support viewing the same live or recorded video stream at different zoom levels.
- G. The Network Video Management Software (NVMS) shall support the creation of unlimited views with unique layouts of video streams.
- H. The Network Video Management Software (NVMS) shall support the ability to full-screen a view.
- I. The Network Video Management Software (NVMS) shall support the ability to save views.
- J. The Network Video Management Software (NVMS) shall support the ability to cycle through views (guard tour) based on a specified interval.
- K. The Network Video Management Software (NVMS) shall display all video sources connected to the system.
- L. The Network Video Management Software (NVMS) shall support the ability to drag and drop a video source from a tree of video sources into a window for live or recorded video and audio monitoring.
- M. The Network Video Management Software (NVMS) shall support the ability to drag and drop a view from a tree of views into a window for live or recorded video and audio monitoring.
- N. The Network Video Management Software (NVMS) shall support the ability to create a map that represents the physical location of cameras and other devices throughout the surveillance system. Maps shall be created from images stored in JPEG, BMP, PNG, or GIF image formats. Maps shall have the ability to contain links so as to create a hierarchy of interlinked maps.
- O. The Network Video Management Software (NVMS) shall support the ability to create a map that has a link to a section of the entire image region.
- P. The Network Video Management Software (NVMS) shall support the ability to drag and drop a video source from a map into a window for live or recorded video and audio monitoring.
- Q. The Network Video Management Software (NVMS) shall support the ability to save a link to a web page and view the web page in a window.
- R. The Network Video Management Software (NVMS) shall provide the ability to manually trigger recording



- A. The Network Video Management Software (NVMS) shall support the ability to call a camera to any monitor using clickable maps.
- B. The Network Video Management Software (NVMS) shall support the ability to digitally zoom in to any live or archive camera images.
- C. The Network Video Management Software (NVMS) shall support the ability to switch between live and archive video instantly.
- D. The Network Video Management Software (NVMS) shall support the ability to investigate system events from the client screen, go back or forward in time using the horizontal time line.
- E. The Network Video Management Software (NVMS) shall support the ability to mark the time line for immediate video export, bookmark an event in a data base structure with meta data parameters such as operator name, event classification, case number, event time, processing time and camera name.
- F. The Network Video Management Software (NVMS) shall support the ability to push live video on event to any of the monitors.

#### 2.10 PTZ

- A. The Network Video Management Software (NVMS) shall support digital zooming and panning on live and recorded video streams.
- B. The Network Video Management Software (NVMS) shall support controlling mechanical pan-tilt-zoom, iris, and focus as well as setting presets and patterns.
- C. The Network Video Management Software (NVMS) shall support controlling mechanical pan-tilt-zoom camera on-screen display and auxiliary controls.
- D. The Network Video Management Software (NVMS) shall support locking PTZ controls.
- E. The Network Video Management Software (NVMS) shall support control of a mechanical pan-tilt-zoom camera with a USB joystick.

#### 2.11 PLAYBACK

- A. The Network Video Management Software (NVMS) shall support forward and reverse playback of recorded video and audio at variable speeds.
- B. The Network Video Management Software (NVMS) shall synchronously playback recorded video and audio from selected video sources.



- C. The Network Video Management Software (NVMS) shall support navigation of recorded video and audio via calendar, timeline, or events.
- D. The Network Video Management Software (NVMS) shall support a timeline that displays all connected video sources and the corresponding motion, alarm and recording events.
- E. The Network Video Management Software (NVMS) shall support a timeline that can display the entire time range down to one second of recorded video and audio.

#### 2.12 BOOKMARK

- A. The Network Video Management Software (NVMS) shall support creating bookmarks for recorded video and audio, displaying the bookmarks on the timeline, and searching for bookmarks.
- B. The Network Video Management Software (NVMS) shall support protecting a bookmark so the video and audio data is never overwritten.

#### 2.13 SEARCH

- A. The Network Video Management Software (NVMS) shall support searching through recorded video and audio based on various search criteria including time, date, video source, and events.
- B. The Network Video Management Software (NVMS) shall support searching through recorded video based on motion in user defined areas (pixel search).
- C. The Network Video Management Software (NVMS) shall support searching through recorded video based on time, date, video source, and image region and have the results displayed as series of thumbnail images.
- D. The Network Video Management Software (NVMS) shall support searching through recorded video based on license plates detected in the images of the video source.

#### 2.14 EXPORT

- A. The Network Video Management Software (NVMS) shall support the ability to export recorded video in the following formats:
  - 1. Native
  - 2. JPEG
  - 3. PNG
  - 4. TIFF
  - 5. AVI
  - 6. PDF





7. Print

- B. The Network Video Management Software (NVMS) shall support the ability to snapshot a live or recorded image and export it from the system in native, PNG, JPEG, TIFF, and PDF file formats.
- C. The Network Video Management Software (NVMS) shall support the ability to export a live stream of images in the following formats:
  - 1. JPEG
  - 2. PNG
  - 3. TIFF

2.15 PLAYER

- A. The Network Video Management Software (NVMS) shall support reviewing video and audio that was exported in the Native format.
- B. The Network Video Management Software (NVMS) shall support authenticating video that was exported in the Native format to validate that it was not tampered with.
- C. The Network Video Management Software (NVMS) shall support converting video that was exported in the Native format to an industry standard format.
- D. The Network Video Management Software (NVMS) shall support reviewing video and audio stored in a backup.

2.16 Network Video Management Platform

- A. The Network Video Management Software (NVMS) shall be Avigilon Control Center
- B. The License Plate Recognition module shall be Avigilon LPR-HD-NVMS

2.17 SIGNAL TRANSMISSION COMPONENTS

- A. General: The Contractor shall provide all wire and cable. Wire and cable components shall be able to withstand the environment in which it is installed for a minimum of 20 years.

PART 3 - EXECUTION

3.1 GENERAL

- A. In most cases, project sites are operational. Close coordination is required with the OAR and trades during execution of the Work. Work to be performed may require off hours scheduling and non-continuous phasing, to avoid disruption to site operations.



- B. The Contractor shall install all system components, including Owner furnished items, and appurtenances in accordance with manufacturer's instructions, ANSI-C2 and as shown, and shall furnish all necessary interconnections, services and adjustments required for a complete and operable system as specified and shown. Control signal, communications, and data transmission line grounding shall be installed as necessary to preclude ground loops, noise, and surges from adversely affecting system operation.
- C. System installation and construction methods shall conform to:
  - 1. The requirements of the FCC and the NEC.
  - 2. Where undefined by codes and standards, the Contractor shall apply a safety factor of at least 2 times the rated load to all fastenings and supports of system components.
- D. The Contractor shall install Video Surveillance system components in accordance with the standards for safety, NFPA 70, UL 681, UL 1037 and UL 1076, and the installation manual for each equipment type. Components within the system shall be configured with appropriate service points to facilitate troubleshooting in under 20 minutes.
- E. The Contractor shall install material and equipment in accordance with standards for safety and shall comply with the most stringent code.
- F. All wiring, including low voltage wiring outside a control console, cabinets, boxes and enclosures, which is not installed in a raceway, chaseway, wall or duct bank, and is physically accessible shall be installed in rigid galvanized steel conduit conforming to UL 6. Wiring which is not physically accessible may be installed in Electric Metallic Tubing (EMT) conforming to UL 797. Minimum size shall be 3/4-inch. All other electrical work shall be as specified in DIVISION 26 ELECTRICAL and as shown.
- G. The Contractor shall not install any system component on an existing structure not clearly indicated on plans without the direct, written approval of the OAR to prevent any possible tank breach, rupture or spark/static potential.

### 3.2 EXAMINATION

- A. Work shall not proceed until Site Examination requirements are completed.
- B. Examine pathway elements intended for cables. Check raceways and other elements for compliance with space allocations, installation tolerance, hazards to camera installation, and other conditions affecting installation.
- C. Examine roughing-in for LAN, WAN, and IP network before device installation.
- D. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.3 WIRING

- A. The Contractor shall install all cables and wiring necessary for a fully functioning system.



- B. The Contractor shall submit shop drawings indicating the intended layout prior to beginning the cable pull. If deviations from the drawings are required they shall be approved by OAR prior to placement of the affected cables.
- C. The Contractor shall comply with NEC for conduit fill ratios.
- D. The Contractor shall assure existing conduits are clean and free from obstruction prior to pulling cabling.
- E. The Contractor shall not install any cable with bend radius less than that recommended by the cable manufacturer.
- F. Do not exceed cable manufacturer's recommended maximum pull tension during installation. Cable lubricant suitable for the given purpose and sheath material may be used on cables pulled in conduits or ducts. Petroleum grease shall not be used.
- G. Mark cables at each end with permanent, non-handwritten number or letter cable markers within six inches of each end. All system cables shall be marked.
- H. Cable nomenclature and marking shall be as specified by the OAR or in compliance with cable labeling standards specified elsewhere in Specifications.
- I. Power Line Surge Protection
  - 1. All equipment connected to AC power shall be protected from surges.
  - 2. Equipment protection shall withstand surge test waveforms described in IEEE C62.41.
  - 3. Fuses shall not be used for surge protection.
- J. Control Line Surge Protection
  - 1. All metallic conductor cables and conductors entering/leaving a building, which serve as communication, control or signal lines shall be protected against surges and shall have surge protection installed at each end.
    - a. Protection shall be furnished at the equipment and an additional surge protector rated for the application on each wireline circuit shall be installed within 3 feet of the building cable entrance.
    - b. Fuses shall not be used for surge protection.
    - c. The inputs and outputs shall be tested in both normal and common modes using the following waveforms:
      - 1) A 10 microsecond rise time by 1000 microsecond pulse width waveform with a peak voltage of 1500 volts and a peak current of 60 amperes.
      - 2) An 8 microsecond rise time by 20 microsecond pulse width waveform with a peak voltage of 1000 volts and a peak current of 500 amperes.



- K. Wiring within Enclosures: Bundle, lace, and train conductors to terminal points with no excess and without exceeding manufacturer's limitations on bending radii. Provide and use lacing bars and distribution spools.
- L. Splices, Taps, and Terminations: For power and control wiring, use numbered terminal strips in junction, pull, and outlet boxes; terminal cabinets; and equipment enclosures.

Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A-486B.

- M. For LAN connection and fiber-optic and copper communication wiring, comply with Division 28 Sections "Communications Backbone Cabling" and "Communications Horizontal Cabling."

#### 3.4 VIDEO SURVEILLANCE SYSTEM INSTALLATION

All Equipment & Software shall be installed, serviced and managed by a TAT authorized and certified Avigilon Dealer/Installer whom in which is under the discretion of the

Compliance Office  
(701) 627-5154  
TAT Energy Department - Oil & Gas Division  
Three Affiliated Tribes - Fort Berthold Indian Reservation  
217 Main Street  
New Town, ND 58763

and the Contractor shall meet the full extent of this approved and mandated permanent Video Surveillance System Specifications.

- N. Install cameras and housings level and plumb.
- O. Document with Owner or OAR the precise camera locations and desired field of view.
- P. Cameras, camera mounts and camera poles shall not be installed until exact camera locations have been approved by OAR.
- Q. Camera Mount: Install the camera mount as specified by the manufacturer and as shown, provide mounting hardware sized appropriately to secure the mount, camera and housing with maximum wind and ice loading encountered at the site; provide a ground rod for each exterior camera mounting pole of correct length as dictated by soil conductivity and connect the camera pole to the ground rod, provide electrical and signal transmission cabling to the mount location as specified; connect signal lines and VAC power to mount interfaces; connect wiring harness to camera.
- R. Pre-set positions: Set all pre-set and alarm positions for PTZ and verify camera and lens homing operation.



- S. Identify system components, wiring, cabling, and terminals.

### 3.4 FIELD QUALITY CONTROL

- A. Provide all personnel, equipment, instrumentation and supplies necessary to perform all testing.
- B. Tests and Inspections:
  - 1. Inspection: Verify that units and controls are properly installed, connected, and labeled, and that interconnecting wires and terminals are identified.
  - 2. Pretesting: Align and adjust system and pretest components, wiring, and functions to verify that they comply with specified requirements. Conduct tests at varying lighting levels, including day and night scenes as applicable. Prepare video-surveillance equipment for acceptance and operational testing as follows:
    - a. Prepare equipment list described in "Submittals" Article.
    - b. Verify operation of auto-iris lenses.
    - c. Set back-focus of fixed focal length lenses. At focus set to infinity, simulate nighttime lighting conditions by using a dark glass filter of a density that produces a clear image. Adjust until image is in focus with and without the filter.
    - d. Set back-focus of zoom lenses. At focus set to infinity, simulate nighttime lighting conditions by using a dark glass filter of a density that produces a clear image. Additionally, set zoom to full wide angle and aim camera at an object 50 to 75 feet away. Adjust until image is in focus from full wide angle to full telephoto, with the filter in place.
    - e. Set and name all preset positions; consult Owner's personnel.
    - f. Set sensitivity of motion detection.
    - g. Connect and verify responses to alarms.
    - h. Verify operation of control-station equipment.
  - 3. Test Schedule: Schedule tests after pretesting has been successfully completed and system has been in normal functional operation for at least 14 days. Provide a minimum of 10 days' notice of test schedule.
  - 4. Operational Tests: Perform operational system tests to verify that system complies with Specifications. Include all modes of system operation. Test equipment for proper operation in all functional modes. OAR to witness all field tests. The field testing shall as a minimum include:
    - a. Verification that the video data transmission media and any signal or control cabling have been installed, tested, and approved.
    - b. Verification that the CCTV equipment is fully functional
    - c. Operation of all electrical, mechanical, and software controls and verification that the control performs the designed function.
    - d. Verification that all video sources with analog video outputs provide a full bandwidth signal that complies with EIA-170 and EIA-170-A at all video inputs.
    - e. Verification that all video conductors are terminated properly.



- f. Verification that all cameras are aimed and focused properly. Conduct a walk test of the area covered by each camera to verify the field of view.
  - g. Verification that fixed mount cameras facing the direction of rising or setting sun are aimed sufficiently below the horizon so that the camera does not view the sun directly.
  - h. If vehicles are used in proximity of the assessment areas, verification of night assessment capabilities and determination if headlights cause blooming or picture degradation.
  - i. Verification that all cameras are synchronized and that the picture does not roll on the monitors when cameras are switched.
  - j. Verification that all other ancillary video equipment is functioning properly.
  - k. Verification that video equipment with alarm indicators annunciates alarms properly and under the correct conditions.
- C. Video surveillance system will be considered defective if it does not pass tests and inspections.
- D. Prepare test and inspection reports.

### 3.5 ADJUSTING

- A. Occupancy Adjustments: When requested within 12 months of date of Substantial Completion, provide on-site assistance in adjusting system to suit actual occupied conditions. Provide up to two visits to Project during other-than-normal occupancy hours for this purpose. Tasks shall include, but are not limited to, the following:
1. Check cable connections.
  2. Check proper operation of cameras and lenses. Verify operation of auto-iris lenses and adjust back-focus as needed.
  3. Adjust all preset positions; consult Owner's personnel.
  4. Recommend changes to cameras, lenses, and associated equipment to improve Owner's use of video surveillance system.
  5. Provide a written report of adjustments and recommendations.

### 3.6 CLEANING

- A. Clean installed items using methods and materials recommended in writing by manufacturer.
- B. Clean video-surveillance-system components, including camera-housing windows, lenses, and monitor screens.

### 3.7 DEMONSTRATION & TRAINING

- A. Provide a minimum of 4 hours training for end user to provide operational familiarity with but not limited to:



1. Log In/Log Out
2. Live camera selection and video monitoring
3. Search features
  
4. Playback of recorded video
5. LPR System, database maintenance and search
6. Control of PTZ Devices
7. Alarm Monitoring
8. Archive of Recorded Images for first responders

### 3.8 ELECTRONICS INSULATED METAL FACILITY

At most subject to change, 8' X 8' Electronics Insulated Metal Facility on each location with

1. Air Conditioning
2. Heat
3. Electricity
4. World Wide Web (internet) access
  - \*may require additional equipment to accomplish minimum bandwidth requirements
  - \*may require monthly service charge(s) from internet carrier
  - \*types of connectivity available: cellular, long range radios, direct fiber, copper or satellite
  - \*internet coverage will vary based on geographical location of the oil well
  - \*connectivity, speeds and coverage is expected to develop and improve over time in the region according to industry experts



**Exhibit C**

**Three Affiliated Tribes & Fort Berthold Oil & Gas  
Portable Video Surveillance System Specification(s)**

Battery powered unit and/or Diesel Hybrid Engine/Battery powered unit

The purpose of these specifications is to describe the portable surveillance camera trailers to be used on all drilling rigs and all existing and new production and disposal wells on the Fort Berthold Reservation. The mobile video surveillance camera trailer is intended to be used as a temporary mobile video recording system on drilling rigs and on well sites until the specified permanent video surveillance system is installed on location. The deployment of these portable surveillance camera trailers are to be on drilling rigs at all times and also on all completed production and disposal wells for a possible few days, weeks or even months until the permanent video surveillance system is installed on location. This will ensure constant 24-Hour video monitoring/recording of all drilling rigs and all existing and new completed production and disposal well locations on the Fort Berthold Reservation. The recorded video on these systems can be viewed either remotely and/or locally.

The Three Affiliated Tribes Emergency Management Team consisting of members from each of the following departments: Energy, TERO, Environmental, Emergency Management & Special Projects has developed this requirement and these specifications to standardize and ensure a consistent and quality Mobile High Resolution Video Surveillance System to monitor all drilling rigs on the Fort Berthold Reservation as well as monitor, protect and preserve the property, wildlife and natural resources of the Three Affiliated Tribes against hazardous waste, oil spills, and also to detect or prevent other hazards and/or disasters that may occur.

The specified equipment shall be products of one manufacturer (Wanco) which has been approved by the Three Affiliated Tribes Emergency Management Team. Therefore, all primary system components for this required temporary mobile high resolution digital video monitoring system shall be Wanco to ensure standardization and consistency for quality control purposes and also for easier system wide management.

Specified Mobile Video Surveillance Camera Trailer(s)

Brand: Wanco  
Model: WCT-D  
Model: WCT-B

Model: Wanco, WCT-D

Application: Diesel Hybrid powered unit, used for medium to long term durations without power. Runs off two deep cycle batteries. The engine controller monitors the batteries at all times. The diesel engine will automatically start; charge the batteries then automatically shut down. Typically





operation is more than four weeks between fuel tank fillings. Consult TAT Authorized Dealer/Vendor for estimated run times for different geographic locations.

Model: Wanco, WCT-B

Application: Battery powered unit, for short term durations runs off four deep cycle batteries. The batteries are recharged by a 120VAC Charger. This unit may be used for locations/applications that have clean power available on-site to plug in to. Consult Authorized Dealer/Vendor for estimated run times for different geographic locations and for power requirements.

These Specifications include all engineering, design, labor, materials, equipment, installation, integration, programming and all other services necessary to construct and provide Mobile Digital Video Management Deployment with fully functional performance, which shall be furnished and installed by an authorized and certified dealer of Wanco Security.

The work shown in Contract Drawings relies upon the execution of interim work by others, and is therefore conceptual in nature. The authorized contractor shall validate site conditions and coordinate with owner representative (OAR) prior to determining precise allocation of communications infrastructure and also the location of the Wanco Mobile Video Surveillance Trailer.

It is the responsibility of the TAT Energy Dept. authorized vendor to ensure the equipment being provided meets the intent of the specifications, is compatible with other equipment being provided by the vendor and any existing analog systems, can be installed at the site as for a fully functional system, and will provide the performance required to meet these specifications and to provide a 24 hour mobile video monitoring/surveillance system.

Training Materials: When Training is conducted, TAT Energy Dept. authorized vendor shall provide one complete set of training materials to the owner representative (OAR).

- A. Vendor qualifications: Equipment installation shall be supervised by a TAT Authorized and Wanco Authorized Contractor having at least ten (10) years experience installing and maintaining systems of similar size and complexity. All installs shall be managed by a Wanco qualified and certified senior technician, Engineer or Project Engineer.
  1. The qualified individual shall have installed at least two (2) systems of similar type and size within the past five (5) years. Submit evidence of required experience. Submit evidence of successful installation, owner training and maintenance for a minimum of the previous five (5) years.
  2. Individual shall be assigned permanently to the Project for the duration of the installation and testing period.
- B. The equipment provider and installer shall be a factory-authorized and trained dealer of Wanco and shall be factory-trained and certified to maintain/repair the System after system acceptance. The provider shall maintain a fully staffed office within two (2) hours travel time from the job site.



1. At least one individual certified by the system Manufacturer (Wanco) shall be on project site at any time work is being done.

C. Service personnel shall have attended Wanco training course for equipment being serviced. Provide certificates of completion or other documentation showing Wanco certification.

**Trailer Specifications:**

The trailer is a compact unit designed to take up little space, easy to tow, deployed by a single person and to be as vandal proof as practical.

**Overall trailer size:**

Length: 142"  
Width: (travel) 52"  
Width: (outrigger deployed) 110"  
Height (travel): 70"  
Height (deployed): 144" (not telescoped), 320" (telescoped)  
Weight: 1860 lbs

**Trailer frame:**

Construction:

Type: Frame is constructed out of steel sheet metal and tubular steel forming a uni-body style construction. The frame is mig welded together for maximum strength.  
Tie down loops: Four corners have steel loops for securing the trailer to the ground or to flat bed truck for transportation  
Tow chains: Two tow chains with snap hooks are attached to trailer drawbar.

Coating:

Pre-wash cleaning: Parts are washed in a five-stage cleaning process, including phosphate coating protection.  
Type: Durable oven baked powder coated paint.  
Standard color scheme: Trailer frame fenders and tower are coated flat black  
Gloss: 10%

Axle assembly:

Type: Single electrometric torsion axle  
Capacity: 2500 lbs

Hub: Idler, 5 bolts on 4.5" centers  
Track: 46.0"

Tires:

Type: Trailer bias ply  
Size: ST175/80D13  
Load rating: 1360 lbs @ 50 psi  
Spare tire: A spare tire is mounted to trailer.

Fenders: Bolt on steel jeep style



Leveling / stabilizing:

Four rotating jack stands level and stabilize the trailer. The two middle jacks are mounted on telescoping outriggers to add sidewise stability. Front tongue jack has a plastic caster wheel to help in moving trailer around. One rear jack mounted off of the rear center part of the trailer frame.

Foot print: 108" wide x 100" long

Hitch: Combination hitch with 2" ball / 2-1/2ID x 1" CS pintle

Drawbar: A short drawbar containing tow hitch can be removed from trailer for added trailer theft protection.

Safety chains: Two safety chains w/ latching hooks are mounted to the trailer main drawbar.

Trailer lights: Trailer has two-rear stop / turn / tail lights. The body sides have two amber front clearance lights and two rear red clearance lights. Flat four trailer plug standard.

***Body compartment:***

Style: Side opening gull wing style doors providing maximum interior access.

Construction:

Type: Individual steel panels are coated and riveted / bolted together for corrosion protection.

Material: 14 ga cold rolled steel

Exterior body size: 31" wide x 60" long x 31.25" high

Paint:

Color scheme: The color scheme was selected to be plain as practical, limiting the visual impact of the unit on its surroundings. Other colors available upon request.

Pre-wash cleaning: Parts are washed in a five-stage cleaning process.

Epoxy coating: All body panels have an epoxy primer coat to improve rust protection.

Top coat: Durable oven baked powder coated paint.

Standard color scheme: Trailer frame and tower are coated flat black. Body components are coated a light gray color.

Inner equipment compartment:

Purpose: Protect the electronic components from dust, moisture, heat and vandalism. This compartment holds the electronics of the camera system, i.e. DVR, keyboard / mouse, display monitor, cellular modem and camera power supplies.

Type: An inner steel compartment is located inside of the main trailer body. Access to this compartment is from the right side of the trailer. The fold down door of this compartment doubles as a desk. This door is secured by both a keyed handle and a pad lock hasp for customer supplied pad lock.



Interior Size: 23" wide x 20" deep x 13" high

Venting: Filtered vents are located throughout the equipment compartment. Cooling fans, controlled by the Low Voltage Disconnect (LVD), draw in cooler outside air over the DVR and vent into the main trailer body.

***Tower Assembly:***

Type: The Premium tower is a three-piece telescoping tower assembly made of square steel tubing. The tower is stowed in the horizontal position for towing. The tower rotates when telescoped to fine tune the camera position. Electronic equipment can be mounted on bottom, middle or top tower sections.

Height: 29ft from ground to top of tower.

Rotation: 120 degrees

Coil sleeve: The Nycoil sleeve is accessible from the top of each tower section. Size: 1" dia.

***Winches:***

System: The unit utilizes a double electric winch system to pivot the tower from travel position (horizontal) to operating (vertical) position. Controls for the winches are inside the left side of the main body compartment. The winches are bolted in place using security hardware.

Capacity: 1500 lbs.

Voltage: 12Vdc

Cable: 3/16" diameter plated aircraft cable

Crank handle: A manual backup crank handle is stored inside the equipment bay if required.

Safety locking pin: An automatic locking pin ensures the tower stays vertical should operator operate the incorrect winch or equipment fail.

Switches: Each winch has a heavy-duty momentary sector switch. The switches are installed on a control panel silk-screened with operating instructions and warnings.

Circuit breaker: An automatic resetting thermal circuit breaker protects winches and wiring.

***Theft protection features:***

Purpose: Wanco understands that would be criminals could be trying to disable the system before or after a crime is committed. Though it is impossible to completely stop someone from disabling this portable surveillance system if so desired, we have taken the following steps to deter or greatly slow them down in their quest to disable the unit.

Wiring: No wiring is exposed at ground level. The wiring is completely enclosed in steel structures until it goes into the PVC coil cord which is approximately 11ft off the ground. This coil cord makes it difficult to get to the wiring even after it is exposed higher up the mast.

Trailer body: Main body: All components are stored inside a steel body enclosure. The two gull wing style doors have pad lockable latches. No hardware is exposed from the outside to remove body panels. Each door corner has a cinching tubular keyed latch. Total locks per door equals three.



Equipment box: The recording equipment, modem, monitor is located inside a second lockable steel compartment within the main trailer body, creating a dual locking system.

Trailer frame:

Removable drawbar: A removable drawbar hitch enables the user to prevent others from towing the trailer away. Two hitch pins hold the drawbar to the trailer frame.

Axle lock: An axle lock bar is placed through the wheel spokes and the trailer frame. This prevents the wheels from turning.

Tower swivel lock: The tower swivel base has numerous positioning holes to use with a pad lock to prevent the tower from rotating.

Corner tie downs: Each trailer corner has a welded steel loop to allow the trailer to be anchored to the ground or chained to a pole.

Jack handles:

The four jack handles are bolted on. Remove the handles to prevent persons from tampering with the trailers stability, or swivel handles down to apply a pad lock.

***Power / Charging System:***

Type: The trailer powers the equipment through the use of 12Vdc batteries. The batteries get re-charged by on-board battery charger. A heavy duty contract grade (12/3) extension cord can be used plug into the trailer.

Main Battery Bank:

Battery

Type: Valve-regulated lead acid (VRLA) AGM (Absorbed Glass Matt) sealed battery

Features of battery: Sealed (maintenance-free), Spill proof / leak proof, minimal gassing, air transportable, superior rechargeability (0% to 90% in 18 hrs)

Number of batteries used: Four

Battery voltage: 12vdc, (14.4 to 14.6 max @ 68deg F)

Battery capacity: 245AH @ 20hr rating, (980AH total capacity)

Battery size: 8D group

Battery charger:

Purpose: Recharge the load batteries in the main battery bank.

Features: Reverse polarity protection, brown-out input protection, over-current protection, over- temperature protection.

Receptacle location: Front right corner of trailer, use typical 15A contractors grade extension cord (12/3)

Load bank battery charger:

Max. output Amps: 75A (1000W)

Output voltage: 14.7Vdc @ no load, +/- 0.7%

Input Volts: 108 – 132Vac

Max. AC current @108Vac: 11A



Frequency: 47 - 63 Hz

Typical efficiency: >80%

Cooling: Electric fan proportionally controlled as needed only by charger heating.

Smart charge controller: Automatically provides three-stage battery charging for safer charging and longer life of battery bank.

Main system fuse:

Purpose: Protect wiring and components in case of shorts

Type: ANL

Rating: 100A

Rubber boots: Each battery post protected with red (+) / black (-) rubber boots

Metering: A battery condition meter shows the battery bank level of charge. The reading is similar to a fuel tank gage, "Empty – Full". A DPDT momentary toggle switch activates meter to indicate level of charge for either load bank or start batteries.

Location: On winch control panel.

***Master/Camera switch panel:***

Purpose: Power up equipment only as needed, eliminates searching each component for its power switch. Each camera (up to four) can be isolated saving battery power when all are not required for each trailer deployment. Alarms, communications packages can be turned on/ off as easy as a toggle switch.

Type: Modular panel holds the camera power supplies, LVD and camera switch pc board controls.

Slide out access: Entire panel assembly slides out the front of the equipment compartment for easy service access. All cables have service loop.

Master switch: System has a master toggle switch to activate / deactivate the entire system.

Camera switches: Control power up to four separate cameras.

DVR switch: Shut down or reset the DVR easily.

Monitor switch: Once system is operational, switch off monitor to conserve power and reduce compartment heat.

Modem: Deactivate or reset modem easily. This switch can also control power to any other communications equipment.

Warning Device: Activate / deactivate external warning beacons or sirens.

Test switch: A momentary switch that tests each circuit that is activated. The green LED light will indicate that the proper power is supplied out the connector to the device.



Power Management system:

Purpose: Control the electronics on the trailer. This controls the cameras, DVR, monitor, cellular modem and auxiliary equipment.

Features: A switch panel to individually control power to each camera, DVR, monitor and modem. This toggle switch panel is equipped with a Low Voltage Disconnect and equipment bay fan controller.

Location: Inside the electronics box on the right side. A slide out tray makes service easy.

Low Voltage Disconnect:

Purpose: Turns off the power to equipment when the battery voltage goes low. This saves the batteries from low voltage damage. System will automatically restart once batteries have been recharged.

DVR protection:

Low voltage: Should battery bank voltage drop to shut down condition, the LVD gives the command to the DVR to shut down first before cutting power to entire system. This prevents the DVR from crashing by having the computer shut down properly

Low temperature: A Thermo sensor is mounted to the top of the DVR. If the temperature at start up on the DVR is below the hard drive temperature rating the LVD will not start protecting the HDD from crashing. A LED warning will flash indicating this condition.

High temperature: When DVR case temperature reaches a pre-set high temperature, the equipment bay cooling fans turn on drawing cooler outside filtered air across the DVR until unit reached cooler temperature.

LVD Settings: Voltage and temperature settings can be adjusted through the LVD program though the computer administrator level.

Fuse Protected: 60A Maxi type

Disconnect setting: 10.5Vdc

Reconnect voltage: 12.6Vdc

Maximum rated power input: 60A

LED warning: A LED indicator shows if unit is operating, has shut down or out of temperature start range.



Fan controls: Two temperature inputs control equipment box cooling fans.

One temperature probe is mounted to DVR chassis and one probe monitoring ambient temperature. Fans run only when DVR temperature rises. This saves battery power.

On setting: 110 degree F

Off setting: 100 degree F

Number of fans: Two

Serial interface: Displays the battery voltage and temperatures readings onto the DVR recording. This can also be viewed remotely to give the user an idea of battery voltage status for Load and Start batteries. It also is connected to a electronic fuel level gage to be able to view diesel fuel level remaining.

***Health Monitoring Software (PWZ Logger):***

**Purpose:** This Wanco remote software enables a user to remotely keep track of the health of the trailer fleet.

**Required equipment:** Cellular router

**Results Tab:**

Software remotely calls each trailer grabbing readings from each trailer. Each reading taken is color coded, green, yellow and red to indicate the status of each trailer. The monitoring operator can see at a glance if there is a problem with any trailer in the fleet.

Group	Results	Control	Parameters	Warning Levels	Location (GPS/Trailer)	
IP	Time	Load Volt	Start Volt	Start Temp	Amb Temp	Fuel %
Arlec Demo trailer	16:25:02	12.731	12.731	127.5		100
Devon OH 245	16:25:09	12.731	12.731	126.8		100
Canadian Pac RR2	16:25:14	12.731	12.731	124.7		100

***Control Tab:***

Control:

Remotely reset the engine control panel using ECU button

Remotely turn ON – OFF cabinet fans using Fan1 button

Remotely turn ON – OFF LVD using

Readings:

Control one trailer at a time

Voltages: Load bank batteries and engine start battery.

DVR temperature: Displays case temperature of computer



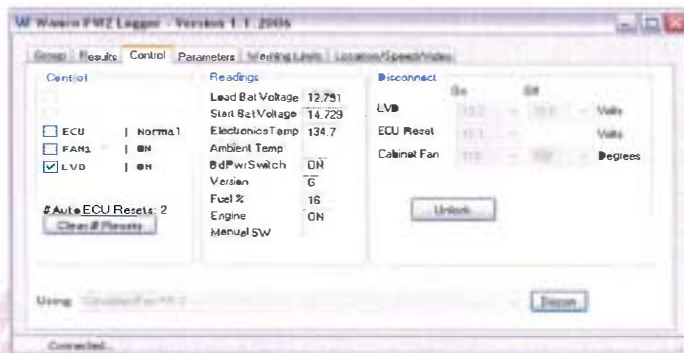


Fuel level: Reads a percentage of fuel remaining (Ambient Temp. if not equipped with engine)

Indicates Master board switch: Will note if trailer master switch is ON or OFF

Indicates engine status: Will note if engine is OFF or ON

Disconnect: Remotely set the ON and Off values for the Low voltage disconnect, cabinet fans and engine control unit reset



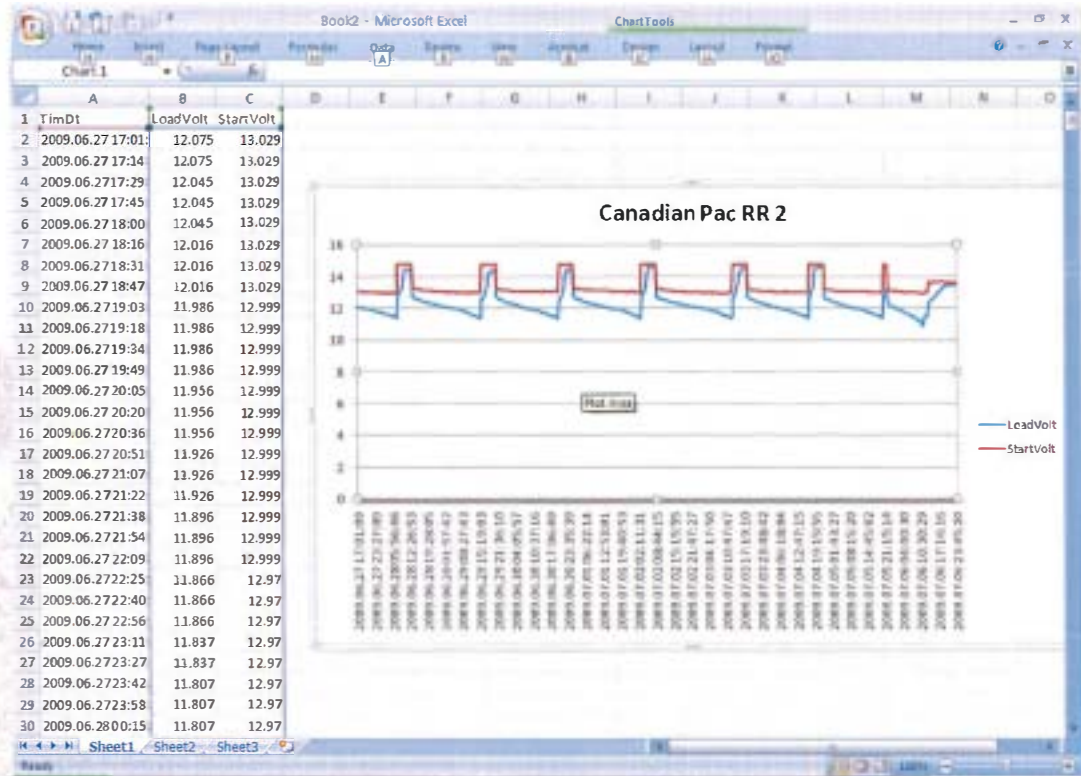
### Logging:

The logging feature of the software takes the grabbed data and displays into an Excel spread sheet. This logging feature is helpful in fuel management and in trouble shooting engine problems remotely.

Auto starts: The logging begins automatically when computer starts up. It is stored on computer for up to 1 year.

Logs:

- Main battery bank voltage
- Start battery voltage
- DVR top temperature
- Engine run status, ON - OFF
- Fuel level percentage
- Low Voltage Disconnect status, ON -OFF



**Recording System:**

Purpose: Record what the camera(s) see. This system on-board ensures the best recording quality, best dependability being hard wired, holds up to 160G of recorded material. Use the DVR to set up motion only recording or set off an alarm / light warning device to scare intruders. Get video playback right from the trailer. Offsite recordings only are subject to slower recording speeds and quality and chance of lost remote communications.

DVR:

Location: Inside equipment bay mounted on a vibration plate with four specially sized rubber isolators.

Features:

- Wanco Security with the Artec Intelligent video Solution (IVS) is a portable video management server with built-in analytics
- Reduce network transmission with on-demand video streaming only when security events take place.
- Reduce false-alarms for security events by up to 95% compared to standard video motion detection (VMD) by ignoring wind, precipitation, light changes, and non-threatening objects.
- Record at a high frame rate but view remotely at a lower frame rate to help bandwidth issues.



Wanco's heavy-duty computer DVR features:

Type: Embedded Fan less Pc Design

Construction: Rugged Aluminum Alloy Chassis

Processor: Intel T550 Core 2 Duo 1.66GHz, 1GB

Input voltage: 9Vdc – 30Vdc

Number of PCI slots: Two

Ports: 2x Ethernet RJ-45/ serial (3x RS-232 & 1x RS-232/422/485)/ 4x USB 2.0 / 1x Audio/ 1x TV out S-video/ 1x VGA/ 1x Compact flash card/ 1 PCMCIA slot .

Recording storage: 160G max. on two 80G automotive 2.5" slim hard drive

Operating system: Windows XP Embedded runs on 8G industrial compact flash

Operating Temperature:

-22°F ~ 185°F (-30°C ~ 85°C)

Operating Vibration:

9.8 m/sec<sup>2</sup> (1.0G) 5 – 500 Hz

Operating Shock:

325g

Non operating shock: 850g

Size: 8.4" wide x 5.3" high x 9.4" deep

Weight: 13.7 lbs

\*\* Note: Two 200G automotive hard drives might be available third quarter 2010, (400G total)

\*\* Analytic Software:

Purpose: Wanco security units feature intelligent video software for real-time event detection and extreme false alarm reduction. Video security is reactive in nature; it was originally designed to record evidence for eventual prosecution. The intelligent video uses software analytics to detect user-defined events, alert in real-time and record the security event.

Bandwidth management: Software has features to greatly reduce the cellular bandwidth usage thus keeping the cellular costs to a minimum. The unit pop-up feature and audible alarm feature allows the system to monitor for events without watching the monitor or using any bandwidth.

Video Compression Algorithms:

Analog: MJPEG, MPEG4 (software) or H.264 (hardware)

IP: MJPEG, JPEG2000, MPEG4, H.264

Display and recording resolution

Unit can record at higher frame rate while displaying at a lower frame rate.

- CIF ( 352 x 288)

- 4CIF ( 704 x 576)

Monitoring windows: Monitor through 7 independent window modes, view maximum 49 cameras on one window.



Channel-independent display and recording parameters:

- resolution, frame rate, quality, continuous recording, pre-post event recording

PTZ control: Remotely control each PTZ camera, fast digital zoom with mouse,

- Manual button control
- Automatic presets and tours

Event notifications:

- Pop-up window mode
- Visual: red box, log
- Audible: wav, mp3, Pc buzzer
- Email: HTML with JPEG
- Text: SMS

Password levels:

- Number: Three; User, Power User and Administrator

Trailer vital sign information:

- Low battery voltages, temperatures and fuel levels

***Monitor:***

Purpose: This high quality LCD display enables users to view cameras set up and aiming, view video playback at trailer. With high output brightness and anti-glare screen monitor is easy to view even in direct full sun.

Location: Monitor is mounted on a slide out frame located on the inside top of the equipment bay. Slide the monitor out of the way when not in use.

Panel Size: 12.0"

Brightness: 1000Nits

Response Time:  $T_R = 5\text{ms}$  typical,  $T_F = 20\text{ms}$  typical

Back Lights: LED 50,000 Hrs. Half Life

Video Connector: HD15(F)

Colors Supported: 16.2 M

Sync: Separate H&V, Combined, SOG (Sync on Green), Digital  
Input Voltage: 9Vdc – 18Vdc



Power Consumption: Normal 35 watts; DPMS: <5 Watts

Operating Temperature: 30 to 70° C

Operating Humidity: 10 to 95%NC

Operating Altitude: Up to 10,000 ft

Key Board:

Type: Weather resistant, flexible

Mounting: Bracketed onto the equipment bay fold down door.

Cable: USB standard

Mouse:

Type: Weather resistant

Buttons: Two

Cable: USB standard

Mouse pad:

Type: Weather resistant

Mounting: Magnetic base sticks to equipment bay door.

***Dome Camera:***

Purpose: Wanco recognizes that there are almost unlimited supplies of different camera systems that can be installed on the trailer. For the ease of operation, a pan, tilt and zoom camera enables the operator to quickly deploy the unit. Wanco offers domed PTZ camera as the standard camera.

Features:

- Rugged camera, able to tow trailer while mounted on tower.
- Extreme climate ranges, hot and cold
- Low light levels

Type: Clear Domed, pan, tilt and zoom (PTZ)

Dome advantage: Difficult to see where camera is aimed, traditional fixed cameras show exactly where they are watching.

Number of cameras: Four

Manufacturer: Vicon



Model: Surveyor

Format: NTSC Color- day/B/W- night

Selection method: Toggle switch control panel

Method of PTZ control: Through DVR with RS-422 or RS-485 communications

Optical zoom: 23X (35X optional)

Digital zoom: 12X

Maximum zoom: 276 optical/digital (420X optical /digital for 35X zoom)

Horizontal resolution: 470 TV lines (color) (540 TV lines for 35X zoom)

Picture elements: 768H x 494V

Lens focal length: 3.6 – 82.8mm (3.4 – 119 mm for 35X zoom)

Horizontal angle of view: 47 deg. Wide, 2.2 deg. telephoto, (55.8 deg wide, 1.7 deg telephoto for 35X zoom)

Cable type: Coax

Operating voltage: 24Vdc

Operating temperature: -40deg F / 165deg F

IP rated: IP66

Mounting: 1-1/2" NPT

***Wireless Cellular Communication:***

Purpose: Watch and/or record trailer video from a remote site.

Advantages: Easy to set up, just deploy trailer and switch on modem (must have cellular service in designated area).

Video quality: 3 -8 frames per second depending on number of cameras activated and site signal.

Up stream speed: 300 – 600 kbps (with Sprint EVDO Rev A)

Down stream speed: up to 1.8Mbps (with Sprint EVDO Rev A)



Camera PTZ control: Slow, may take 2 – 15 sec to view move. We recommend setting up camera pre-sets at the site for faster touring.

Monthly service costs: contract your local provider, recommend largest data plan available

***IR Illuminators***

Purpose: Illuminate an area at night for better camera viewing. Wanco offers white light illuminators and invisible Infra-Red illuminators. Standard units have 30 degree viewing angle. Other narrower and wider angles are available.

Each trailer comes with two illuminators that can be independently aimed.

**Benefits:**

- Designed to be used with cameras
- Low voltage, low power consumption
- Greater distances
- Long life LED's used
- Compact size

**Infra-red light unit:**

- Maximum distance: 262 ft (80m)
- Light type: 850nm led's (940nm optional)
- Viewing angle: 30 degree
- Power consumption: 35W
- Voltage input: 24Vdc
- Temperature rating: -50C to +50C (-58F to +122F)
- Size: 7.0" x 5.25" x 2.5" (180mm x 135mm x 65mm)
- Activation: Toggle switch on control panel and photo eye on illuminator



## VIDEO SURVEILLANCE SYSTEM INSTALLATION

All Equipment & Software shall be installed, serviced and managed by an Authorized and Certified Wanco Dealer/Installer whom in which is under the discretion of the

Compliance Office  
(701) 627-5154  
TAT Energy Department - Oil & Gas Division  
Three Affiliated Tribes - Fort Berthold Indian Reservation  
217 Main Street  
New Town, ND 58763

and the Authorized Contractor/Vendor shall meet the full extent of this approved and mandated Mobile Video Surveillance System Specifications.

### ***Solar Charging***

**Purpose:** A solar panel assists the battery charging of the battery bank. It also keeps the batteries charged when the unit is being stored outside not being used.

**Location:** Solar panel lays flat on top of the trailer top, between the trailer top and tower when the tower is horizontal. Mounting brackets are designed to be vandal resistant.

**Voltage regulator:** 10A solar regulator tied into charging system

**Maximum Power output:** 130W, tolerance = +10% / -5%

**Maximum Power Voltage:** 17.6Vdc

**Maximum Power Current:** 7.39A

### ***Power Inverter***

**Purpose:** Converts 12Vdc battery voltage to 115Vac 60 Hz power for ac powered equipment.  
Other output voltages available, contact factory.

**Output power:** 600W continuous, 1100W surge

**Type:** True sin wave

**Number of outlets:** Two

**Over Voltage:** Shut off at maximum input voltage, per input conditions.

**Under Voltage:** Shut off at minimum input voltage, per input conditions. Warning buzzer sounds before shutoff.

**Thermal:** 105C internal temperature. warning buzz 5 C before shut off.





Output Short: Units shuts off and must be manually reset.

Temperature: -25 to 40 C full power derated above 40 C

Humidity: 5 to 95% non condensing.

Altitude: -200 to 10k feet full power, derated above 10k.

Audible Noise: Less than 45 dbA

Cooling: Thermostatically controlled fan.

Finish: Painted aluminum.

### ***Siren horn***

Purpose: Scare intruders away if entering a violated area or can be activated manually by operator viewing cameras. The siren also calls attention to the surveillance unit.

Location: Top of the lower mast assembly

Tone type: Yelp

Power: 58 watts

### ***GeminEye Camera***



Purpose: This camera is a rugged PTZ camera that has an IR illuminator attached opposite of the camera that will follow the moves of the camera. The advantage to this camera is whether day or night the object being viewed is always visible.

### Features:

- Compact & rugged camera system, remain mounted to tower while being towed.
- Quick change camera blocks allow illuminator to be swapped for a Thermal Imaging camera or Mega pixel camera.
- IR illuminator follows day/night camera
- Extreme climate ranges, hot and cold



Type: Dual side mount positioned with swappable modules

Advantage: Illuminator follows every move of the camera. Camera has a tilt angle of +90 to -90 degrees.

Number of camera systems: One

Format: NTSC Color- day/B/W- night

Selection method: Toggle switch control panel

Method of PTZ control: Through DVR with RS-422 communications

Optical zoom: 26X

Digital zoom: 12X

Maximum zoom: 312X optical /digital

Horizontal resolution: 470 TV lines (color)

Picture elements: 768H x 494V

Lens focal length: 3.4 – 119 mm

Horizontal angle of view: 42.0 deg wide, 1.7 deg telephoto

Cable type: Coax

Operating voltage: 10 - 30Vdc

Operating temperature: -40deg F / 165deg F

IP rated: IP66

Mounting: pedestal flat base with four mounting bolts

***IR Illuminator***

Purpose: Provide invisible light that only the camera can see.

LED wavelength rating: 850nm, semi-covert (optional 940nm covert)

Angularity: 20 deg.

Distance: Approximately 500 - 600ft



Power Consumption:

Activated by: toggle switch on front panel and photo eye

***QuickSet thermal camera option***

Purpose: Replace the IR Illuminator with a thermal imaging camera for superb zero light night conditions.

Picture elements: 320 x 240

FOV: 12 degrees

Focal Length: 45mm

Focus type: manual





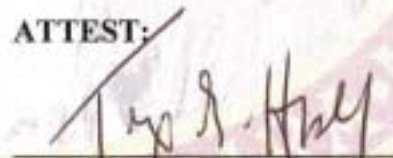
**CERTIFICATION**

I, the undersigned, as Secretary of the Tribal Business Council of the Three Affiliated Tribes of the Fort Berthold Indian Reservation hereby certify that the Tribal Business Council is composed of seven (7) members of whom five (5) constitute a quorum, 7 were present at a Regular Meeting thereof duly called, noticed, convened and held on the 24<sup>th</sup> day of January, 2013, that the foregoing Resolution was duly adopted at such meeting by the affirmative vote of 7 members, 0 members opposed, 0 members abstained, 0 members not voting, and that said Resolution has not been rescinded or amended in any way.

Chairman [] Voting. [  ] Not Voting.

Dated this 24<sup>th</sup> day of January, 2013.

  
Tribal Secretary Judy Brugh  
Tribal Business Council  
Three Affiliated Tribes

ATTEST:  
  
Tribal Chairman Tex G. Hall  
Tribal Business Council  
Three Affiliated Tribes