NEPA COMPLIANCE SURVEY
#249

Project Information			
Project Title:	Down Hole Seismic Source 68-SX-11	**Date:**	10-26-2009
DOE Code:		**Contractor Code:**	8067.742
Project Lead:	Mike Curtis		

Project Overview	
1. What are the environmental impacts? 2. What is the legal location? 3. What is the duration of the project? 4. What major equipment will be used if any (work over rig, drilling rig, etc.)?	To stimulate the Shannon Reservoir using a down-hole seismic source set in well 68-68-Sx-11. The source will be powered by a self-contained, electric driven, surface, hydraulic unit. Production data will be logged at the 8 surrounding wells. Environmental Impact - There will be no environmental impact on the surface or subsurface. Location - Tool will be installed in 68-68-Sx-11. Production will be logged at the 8 surrounding production wells Duration - 3 months RMOTC Equipment - Smeal to install the down-hole equipment. Water truck to top up the fluids in well-bore (if necessary). Forklift to unload the partner's hydraulic unit

The table below is to be completed by the Project Lead and reviewed by the Environmental Specialist and the DOE NEPA Compliance Officer. NOTE: If Change of Scope occurs, Project Lead must submit a new NEPA Compliance Survey and contact the Technical Assurance Department.

	Impacts Anticipated?			If YES, then complete below
Water Quality	**Yes**	**No**	**NA**	**If the anticipated impact might be unacceptable, recommend mitigation measures:**
Does the proposed project present potential for impacts on water resources or water quality?	☐	☒	☐	
Does the project affect surface water quantity or quality under both normal operations and accident conditions?	☐	☒	☐	
Does the proposed project affect groundwater quantity or quality under both normal operations and accident conditions?	☐	☒	☐	
Will the project area include "Waters of the State?"	☐	☒	☐	
Will the project area require a Corps of Engineers permit?	☐	☒	☐	

NEPA COMPLIANCE SURVEY

	Impacts Anticipated?			If YES, then complete below.
Geology & Soils	**Yes**	**No**	**NA**	**If the anticipated impact might be unacceptable, recommend mitigation measures:**
Does the proposed project present potential for impacts related to geology or soils?	☐	☒	☐	
Does the proposed project alter, excavate or otherwise disturb land area consistent with other land use and habitat area?	☐	☒	☐	
Is the proposed project likely to impact local seismicity?	☐	☒	☐	Energy imparted into the subsurface is very localized and extremely weak so it will not impact the local seismicity
If the project involved disturbance of surface soils, are erosion and storm water control measures addressed?	☐	☒	☐	Best management practices will be followed to prevent erosion.
Air Quality	**Yes**	**No**	**NA**	**If the anticipated impact might be unacceptable, recommend mitigation measures:**
Does the proposed action present potential for impacts on ambient air quality under both normal and accident conditions?	☐	☒	☐	The hydraulic unit is electrically powered
Are potential emissions (gases and/or airborne particulates including dust) outside of the normal scope for oil field operations?	☐	☒	☐	
Does the project present risk to human health and the environment from exposure to radiation and hazardous chemicals in emissions?	☐	☒	☐	Al compressed gas cylinders will be secured to a permanent structure to prevent spills. MSDS must be available at location and TAD
Is the project subject to New Source Performance Standards?	☐	☒	☐	
Is the project subject to National Emissions Standards for Hazardous Air Pollutants?	☐	☒	☐	
Is the project subject to emissions limitations in an Air Quality Control Region?	☐	☒	☐	

NEPA COMPLIANCE SURVEY

	Impacts Anticipated?			If YES, then complete below.
Wildlife and Habitat	**Yes**	**No**	**NA**	**If the anticipated impact might be unacceptable, recommend mitigation measures:**
Does the proposed action present potential for impacts on wildlife or habitat?	☐	☒	☐	
Does the project impact state or federally listed threatened and endangered species?	☐	☒	☐	
Human Health Effects	**Yes**	**No**	**NA**	**If the anticipated impact might be unacceptable, recommend mitigation measures:**
Does the proposed project present potential for effects on human health? **e.g.: Hanta virus, radiological exposure, or chemical exposure (must provide MSDS)**	☒	☒	☐	There may be a small tank of compressed nitrogen gas which will be stored, secured and utilized an accordance with best management practices.
Transportation	**Yes**	**No**	**NA**	**If the anticipated impact might be unacceptable, recommend mitigation measures:**
Does the proposed project involve transportation of radiological sources or hazardous materials (including explosives)?	☐	☒	☐	
Waste Management and Waste Minimization	**Yes**	**No**	**NA**	**If the anticipated impact might be unacceptable, recommend mitigation measures:**
Are pollution prevention and waste minimization practices needed in the proposed project?	☐	☒	☐	There may be a small tank of compressed nitrogen gas which will be stored, secured and utilized an accordance with best management practices.
Does project plan establish procedures in compliance with local, state and/or federal laws and guidelines affecting the generation, transportation, treatment, storage or disposal of hazardous and other wastes?	☐	☒	☐	A JSA will be completed at the start of each workday. SOPs will be followed and reviewed for compliance with State and local regulations

NEPA COMPLIANCE SURVEY

	Impacts Anticipated?			If YES, then complete below.
Cultural Impact	**Yes**	**No**	**NA**	**If the anticipated impact might be unacceptable, recommend mitigation measures:**
Is there potential for impact on cultural (historic) resources?	☐	☒	☐	Archeologist reviewed with no negative impact
Community Impact	**Yes**	**No**	**NA**	**If the anticipated impact might be unacceptable, recommend mitigation measures:**
Will the proposed project introduce significantly adverse auditory, visual, or other impact?	☐	☒	☐	
Will the proposed project adversely affect the community's use of public land/resources?	☐	☒	☐	
Will the proposed project adversely affect the community's access to private land?	☐	☒	☐	

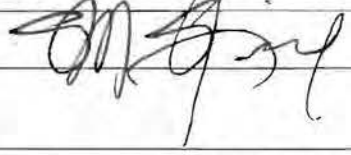
NOTE: Topography Map and Wetlands Map are required to be attached. Attach applicable SOPs for Risk Assessment Level 2 & 3 and specific test procedures.

Are permits required? If YES, list below:	**Yes** ☐	**No** ☒

Section below to be reviewed by Environmental Specialist and DOE NCO.

Adequate Mitigation Measures Provided?				**Adequate Mitigation Measures Provided?**	
	Yes	No		Yes	No
Water Quality Impacts	☒	☐	Transportation Impacts	☒	☐
Air Quality Impacts	☒	☐	Waste Management Impacts	☒	☐
"Wildlife and Habitat Impacts	☒	☐	Cultural Impacts	☒	☐
Geology and Soils Impacts	☒	☐	Community Impact	☒	☐
Human Health Impacts	☒	☐	**Categorical Exclusion**	☒	☐

Approvals

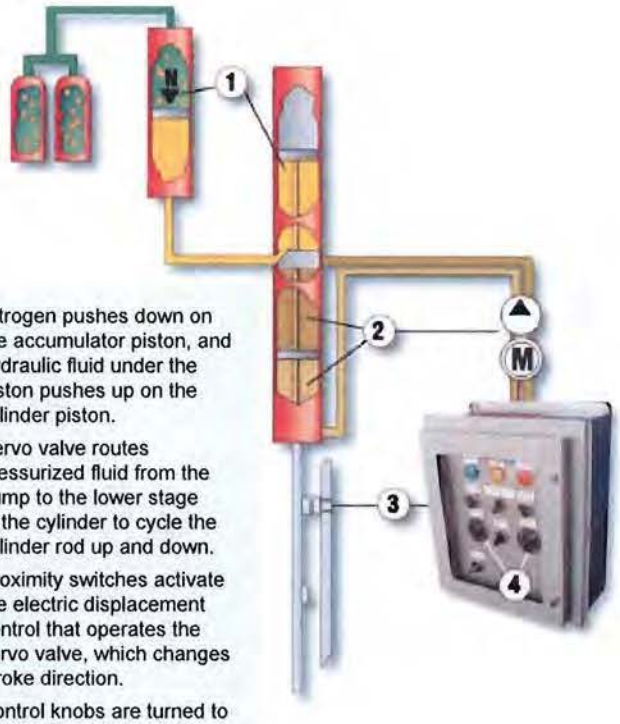
Comments and Conditions:	✓ B3.7 Siting, construction and operation of a new infill exploratory and experimental (test) oil, gas, and geothermal well, which are to be drilled in geological formations that have existing operating wells ✓ B5.12 Workover (operations to restore production, such as deepening, plugging back, pulling and resetting lines, and squeeze cementing) of an existing oil, gas, or geothermal well to restore production when workover operations will be restricted to the existing well pad and not involve any new site preparation or earth work that would adversely affect adjacent habitat.	
Contractor ESS&H		Date 11-2-09
Comments and Conditions:		
	Based on my review of information conveyed to me and in my possession (or attached) concerning the proposed action, as NEPA Compliance Officer (as authorized under DOE Order 451.1A), I have determined that the proposed action fits within the specified class of actions, the other regulatory requirements set forth above are met, and the proposed action is hereby categorically excluded from further NEPA review.	
DOE NEPA Compliance Officer	CX5 B 3.7 & B5.12. Michael J Taylor	Date 11/16/09

Weatherford®

VSH2™ Nitrogen-Over-Hydraulic Pumping Unit

Weatherford's *VSH2* nitrogen-over-hydraulic reciprocating rod pump is designed specifically for fields with heavy crude oil and wells with rod fall problems. Nitrogen-over-hydraulic technology lifts greater loads and, in most cases, uses less energy than conventional pumping units. The *VSH2* pumping unit can accommodate polished rod loads up to 40,000 lb (18,144 kg) and has pump depths to 11,000 ft (3,353 m). Strokes per minute (SPM) can be changed with a simple turn of a knob.

Managing surface pumping assets is a key step in optimizing production from mature reservoirs. Weatherford's flexible reciprocating rod-lift systems feature the latest technology in pumping unit, rod pump, and sucker rod designs. The industry's only comprehensive, solutions-driven suite of artificial lift systems, products, and services ensures systems integration and full-service capabilities for optimal lift performance and return on investment.



1. Nitrogen pushes down on the accumulator piston, and hydraulic fluid under the piston pushes up on the cylinder piston.
2. Servo valve routes pressurized fluid from the pump to the lower stage of the cylinder to cycle the cylinder rod up and down.
3. Proximity switches activate the electric displacement control that operates the servo valve, which changes stroke direction.
4. Control knobs are turned to change SPM.

Applications

- Lifting of heavy crude oil in pump-to-surface applications
- Correction of rod fall problems
- Testing of new and re-entry wells
- Short-term repairs
- Wells requiring large-bore pumps

Weatherford International Ltd.
515 Post Oak Blvd., Suite 600
Houston, Texas 77027 USA
Tel: 713-693-4000
www.weatherford.com

VSH2™ Nitrogen-Over-Hydraulic Pumping Unit

Features, Advantages and Benefits

- Energy consumption, in most cases, is less than that of conventional pumping units. Nitrogen supplies approximately two-thirds of the lifting power, decreasing the horsepower requirement.
- With only three moving parts (excluding the prime mover), the *VSH2* unit offers low maintenance and high reliability. Maintenance consists of just one filter per year and the normal visual inspections required of any piece of equipment.
- The lightweight, compact, and uncomplicated design of the *VSH2* unit minimizes site preparation, transportation, and setup costs.
- Easy, variable speed control provides greater flexibility in operating the equipment and adjusting to well conditions.
- Design provides versatility for pumping a wide range of wells.

Specifications

Performance Data

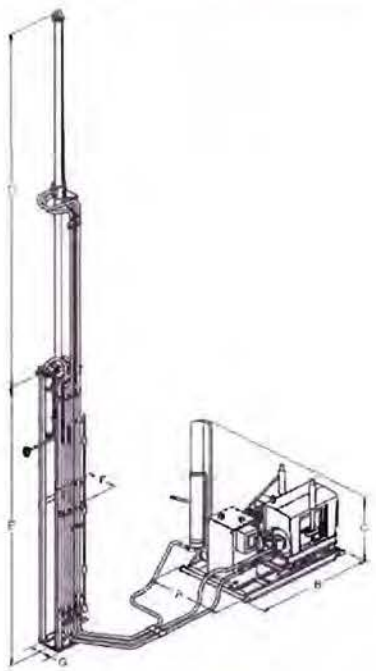
Unit model	60	120	150
Maximum stroke (in./*mm*)	60 *1,524*	120 *3,048*	150 *3,810*
Minimum stroke (in./*mm*)	24 *610*	52 *1,321*	72 *1,829*
Maximum speed[1] (SPM)	9	8	7
Maximum rod loads[2] (lb/*kg*)	35,000 *15,876*	40,000 *18,144*	
Cylinder size (in./*mm*)	4 *101.6*		

[1]Maximum speed (SPM) can vary, depending on peak polished rod load (PPRL).
[2]PPRL loads can vary, depending on speed (SPM).

Specifications

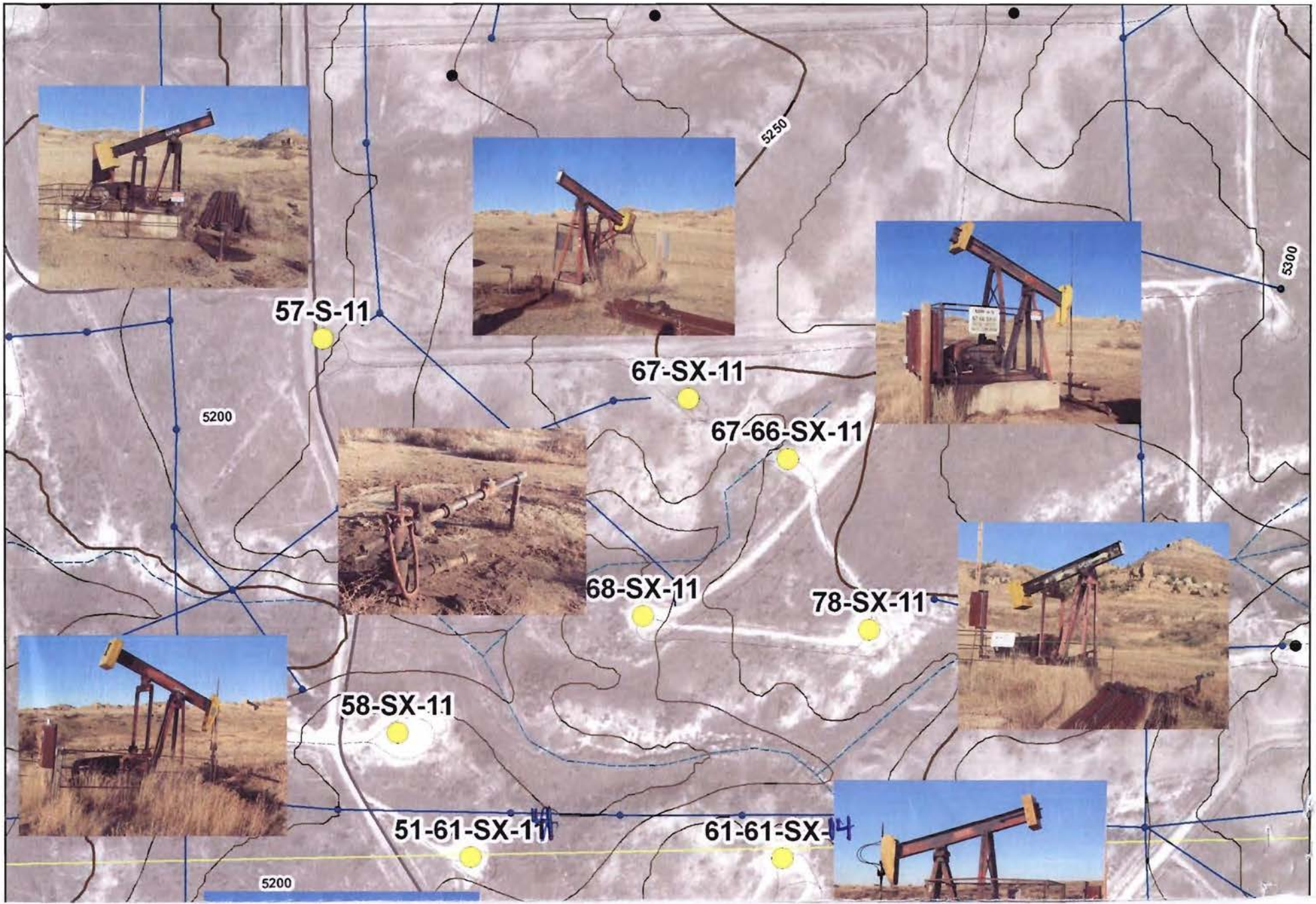
Overall Dimensions

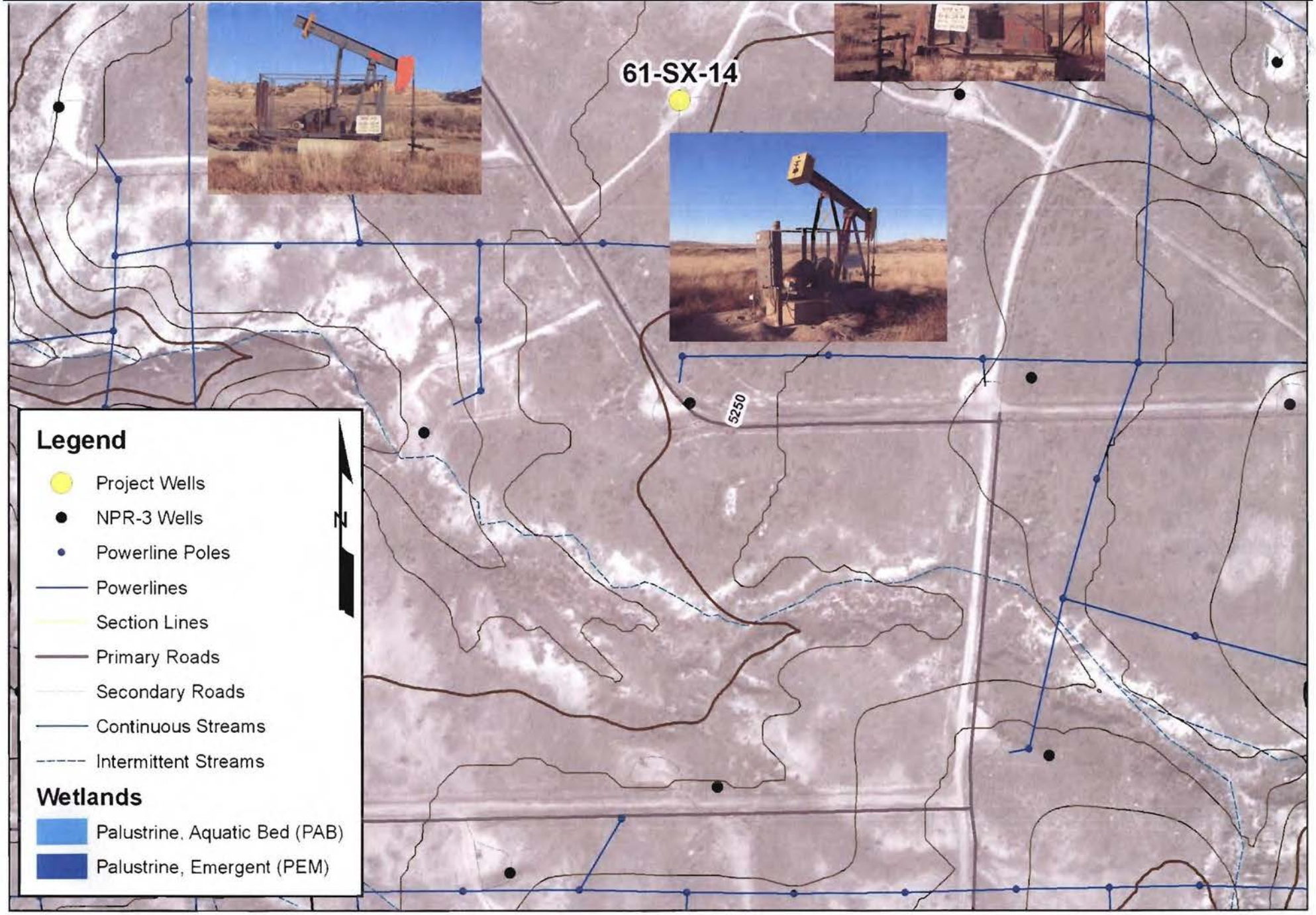
Unit model		60	120	150
A	Width (ft/*m*)	5.1 *1.5*		
B	Length (ft/*m*)	8.5 *2.6*		
C	Shipping height (ft/*m*)	4.8 *1.4*		
C	Working height, 90° (ft/*m*)	5.2 *1.6*	6.2 *1.9*	
C	Working height, vertical (ft/*m*)	6.9 *2.1*	9.6 *2.9*	
D	Height, cylinder (ft/*m*)	13.1 *4.0*	21.3 *6.5*	23.1 *7.0*
E	Height, pedestal (ft/*m*)	12.0 *3.7*	18.0 *5.5*	21.2 *6.5*
F	Shipping width, mast (in./*mm*)	26.0 *660*		
G	Width, mast (in./*mm*)	18.5 *470*		



Weatherford International Ltd.
515 Post Oak Blvd., Suite 600
Houston, Texas 77027 USA
Tel: 713-693-4000
www.weatherford.com

68-SX-11


5250
5300
5200
57-S-11
67-SX-11
67-66-SX-11
68-SX-11
78-SX-11
58-SX-11
51-61-SX-11
61-61-SX-14
5200



State Plane / East Central Zone / NAD27 / Scale = 1:3,000

10/15/2009

RMOTC

Project Manager: M Curtis
GIS Technician: J Buelt