

**MOBILE PUMP STATIONS**  
**USER REQUIREMENT SPECIFICATIONS**

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**U.S. DEPARTMENT OF COMMERCE**  
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**APPROVED**

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## **2 SCOPE**

The project will include several new mobile pump stations. This document defines the requirements and deliverables for these systems. It describes overall requirements that must be met to produce the specific equipment requested. This document covers the procurement and delivery of the systems, with no required installation.

This URS is the input document for the:

- Equipment procurement purposes.
- Equipment sizing
- Functional and technical specifications.

## **3 BACKGROUND**

The Dakota Bioproducts Innovation Institute is a research facility for the development of high-quality bioproducts. Mobile pump stations have been identified as one of the pumping methods that will be available for customer use.

## **4 PROCESS DESCRIPTION**

The Mobile Pump Stations will be used to transfer process liquids to and from storage tanks, as well as to supply process liquids to various processing operations. Each station will include a pump and VFD bolted to a wheeled cart that can be easily moved by one person. The pumps shall be of a sanitary design and CIP cleanable without dismantling. Additional detailed requirements for each station are listed in the URS table.

## **5 BASIS OF DESIGN**

### **5.1 Capacities**

The required capacities of the various pump stations are listed in the URS table near the end of this document.

### **5.2 Skidded Construction**

Each pump station will include a wheeled cart. Any equipment that is part of the pump station shall be bolted to the cart. The station shall come prewired and include a single electrical connection. Requirements for the pump stations and their component parts will be defined by the equipment supplier in a pre-purchase detailed proposal that includes drawings.

### **5.3 Health, Safety and Environment (HSE)**

The pump stations shall satisfy appropriate conformity assessment procedures and the controls shall carry the UL marking. Selected units shall be 3A certified for sanitary use. The units will be designed to protect users from hot surfaces. Pressure relief safety valves or rupture disks shall be vented to a safe location.

### **5.4 Operation, personnel and automation**

The pump stations are not expected to be fully automated. An operator will be expected to move a pump station into position, manually make the electrical and process connections, start the pump, and set the pump at an appropriate speed. The operator will manually adjust VFD speed in order to control the flow rate and/or discharge pressure. Starting and stopping the pump, as well as adjusting VFD speed, shall be done via controls mounted on the pump station. Instruments for monitoring flow and pressure are not required on the mobile pump stations.

### **5.5 Materials of Construction**

All materials of construction must be compatible with ambient and hot water for injection (WFI), and typical chemical cleanings agents such as phosphoric acid, potassium hydroxide, and sodium hydroxide up to 3%. Wetted parts shall be 304 stainless steel or better.

### **5.6 Reliability & maintenance**

The skid will be designed to operate routinely during 24 / 7 / 365 operations. All wear parts shall be easily accessible and replaced on a regular maintenance schedule. Wear parts like gaskets shall be stock items that can be ordered and delivered in a timely manner.

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## **6 ABBREVIATIONS, ACRONYMS & DEFINITIONS**

<b>Acronyms</b>	<b>Description</b>
CIP	Clean In Place
GPM	Gallons Per Minute
OPT	Optional Attribute
PLC	Programable Logic Controller
REQ	Required Attribute
SCADA	Supervisory Control and Data Acquisition
SOP	Standard Operating Procedures
URS	User Requirements Specification
VFD	Variable Frequency Drive
WFI	Water For Injection

## 7 USER REQUIREMENT SPECIFICATIONS

URS TABLE – Mobile Pump Stations		
Designation	Description	Type
<b>CENTRIFUGAL PUMP STATION</b>		
URS-F1	Pump flow rate shall be approximately 10 GPM @ 55' and 50 GPM @ 45'.	REQ
URS-F2	Wetted parts shall be constructed of 316 stainless steel.	REQ
URS-F3	The pump shall be 3A Certified for sanitary use.	REQ
URS-F4	The pump shall be CIP cleanable without dismantling.	REQ
URS-F5	The pump motor shall be included and carry an IP55 rating or better.	REQ
URS-F6	Power shall be provided to the pump station via a single point, 240-480V, 3 phase, 60 Hz connection.	REQ
URS-F7	Mobile pump station shall include a VFD, with on/off and frequency speed controls mounted on the skid.	REQ
URS-F8	Pump shall utilize tri-clamp suction and discharge connections.	REQ
URS-F9	Pump shall be supplied with a type D external balanced seal.	REQ
<b>POSITIVE DISPLACEMENT PUMP STATION</b>		
URS-F10	Pump flow rate shall be approximately 0-6 GPM @ 10 psig and 0-1 GPM @ 70 psig.	REQ
URS-F11	The pump shall be able to handle process liquid viscosities ranging from 1 to 20,000 cP.	REQ
URS-F12	Wetted parts shall be constructed of 304 stainless steel or better.	REQ
URS-F13	The pump shall be 3A Certified for sanitary use.	REQ
URS-F14	The pump shall be CIP cleanable without dismantling.	REQ
URS-F15	The pump motor shall be included and carry an IP55 rating or better.	REQ
URS-F16	Power shall be provided to the pump station via a single point, 240-480V, 3 phase, 60 Hz connection.	REQ
URS-F17	Mobile pump station shall include a VFD, with on/off and frequency speed controls mounted on the skid.	REQ
URS-F18	Pump shall utilize tri-clamp suction and discharge connections.	REQ
URS-F19	Pump seals shall be designed to be easily and quickly replaced by one person.	OPT
URS-F20	A pressure relief valve, designed to prevent the pump from overpressurizing downstream piping and components, shall be installed on the pump casing cover.	REQ
<b>SOLIDS INDUCTION STATION</b>		
URS-F21	The station shall include a solids hopper with a solids capacity of at least 40 lbs.	REQ

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<b>URS TABLE – Mobile Pump Stations</b>		
<b>Designation</b>	<b>Description</b>	<b>Type</b>
URS-F22	The recirculation pump shall be a high shear blending pump and capable of approximately 90 GPM into tanks up to 20' tall.	REQ
URS-F23	Wetted parts shall be constructed of 316 stainless steel.	REQ
URS-F24	The system shall be of a sanitary design and CIP cleanable without dismantling.	REQ
URS-F25	The pump motor shall be included and carry an IP55 rating or better.	REQ
URS-F26	Power shall be provided to the pump station via a single point, 240-480V, 3 phase, 60 Hz connection.	REQ
URS-F27	The system shall include a VFD, with on/off and frequency speed controls mounted on the skid.	REQ
URS-F28	The pump shall utilize tri-clamp suction and discharge connections.	REQ
URS-F29	The mechanical seal shall be a single seal with carbon and silicon carbide seal faces.	REQ
URS-F30	The system shall include a method for purging oxygen from the hop chamber.	REQ
URS-F31	A glass top manway shall be included to ensure solids are moving.	REQ
<b>ALL PUMP STATIONS</b>		
URS-F32	The wheeled pump carts shall be built out of stainless steel tubing and easily moved by one person.	REQ
URS-F33	Full system documentation shall be provided, including instruction and maintenance manuals, safety instructions, P&ID, and dimensional drawings.	REQ
URS-F34	Control system documentation shall be provided, including specifications, wiring overview, circuit diagram, arrangement drawing, terminal connection diagram,	REQ

**END OF SPECIFICATION**

## 8 SELECTION CRITERIA

Vendors will be evaluated based on the following criteria:

<b>Evaluation Criteria</b>		
<b>Description</b>	<b>Ranking</b>	<b>Weight</b>
<b>Mandatory Technical Requirements</b> A review of your proposal to determine adherence with the REQ specifications and technical requirements.	1-10	30%
<b>Proposal Pricing</b> Review of your proposal in relation to the services offered in the proposal. Proposals will be evaluated against competing proposals for cost effectiveness. Proposals will be evaluated to be reasonable and appropriate.	1-10	20%
<b>Technical Response</b> The technical response in your proposal portrays knowledge, experience, and professionalism. Relevant product features and/or specifications are available with your equipment other than those mandatory specifications allotted above.	1-10	10%
<b>Lead Time</b> A review of your product's lead time to meet business objectives.	1-10	15%
<b>Product Warranty</b> The available warranty, in scope, duration, and value, proposed with your product.	1-10	5%
<b>Experience and Demonstrated Results</b> Our evaluation will include a review of your history, your experience as it relates to the requirements within this RFP, evidence of past performance, quality and relevance of past work, references, and related items.	1-10	20%

## 9 RETURN BIDS TO

Craig Arnold      [craig@dbii.org](mailto:craig@dbii.org)

Bobby Markham      [Bobby.Markham@sdstate.edu](mailto:Bobby.Markham@sdstate.edu)



## **10 OTHER PROVISIONS**

Must meet 200 CFR buy America Provision • Title 49 Subtitle B Chapter VI [Part 661](#)

Federal Participation Disclosure – “This project will be partially funded with Federal funds from the United States Department of Commerce, Economic Development Administration and therefore is subject to the Federal laws and regulations associated with that program.”

Must meet Federal Contract provision 200 CFR Title 2 subtitle A Chapter II [Part 200](#)

### **Certification Relating to Prohibited Entity**

For contractors, vendors, suppliers, or subcontractors who enter into a contract with the State of South Dakota by submitting a response to this solicitation or agreeing to contract with the State, the bidder or offeror certifies and agrees that the following information is correct:

The bidder or offeror, in preparing its response or offer or in considering proposals submitted from qualified, potential vendors, suppliers, and subcontractors, or in the solicitation, selection, or commercial treatment of any vendor, supplier, or subcontractor, is not an entity, regardless of its principal place of business, that is ultimately owned or controlled, directly or indirectly, by a foreign national, a foreign parent entity, or foreign government from China, Iran, North Korea, Russia, Cuba, or Venezuela, as defined by South Dakota Executive Order 2023-02. It is understood and agreed that, if this certification is false, such false certification will constitute grounds for the State to reject the bid or response submitted by the bidder or offeror on this project and terminate any contract awarded based on the bid or response. The successful bidder or offeror further agrees to provide immediate written notice to the contracting executive branch agency if during the term of the contract it no longer complies with this certification and agrees such noncompliance may be grounds for contract termination.

### ***RESTRICTION OF BOYCOTT OF ISRAEL***

For contractors, vendors, suppliers, or subcontractors with five (5) or more employees who enter into a contract with the State of South Dakota that involves the expenditure of one hundred thousand dollars (\$100,000) or more, by submitting a response to this solicitation or agreeing to contract with the State, the bidder or offeror certifies and agrees that the following information is correct:

The bidder or offeror, in preparing its response or offer or in considering proposals submitted from qualified, potential vendors, suppliers, and subcontractors, or in the solicitation, selection, or commercial treatment of any vendor, supplier, or subcontractor, has not refused to transact business activities, has not terminated business activities, and has not taken other similar actions intended to limit its commercial relations, related to the subject matter of the bid or offer, with a person or entity on the basis of Israeli national origin, or residence or incorporation in Israel or its territories, with the specific intent to accomplish a boycott or divestment of Israel in a discriminatory manner. It is understood and agreed that, if this certification is false, such false certification will constitute grounds for the State to reject the bid

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or response submitted by the bidder or offeror on this project and terminate any contract awarded based on the bid or response. The successful bidder or offeror further agrees to provide immediate written notice to the contracting executive branch agency if during the term of the contract it no longer complies with this certification and agrees such noncompliance may be grounds for contract termination.