

**ENGINEERING SERVICES ESTIMATE**

Client: City and Borough of Sitka  
 Project: Backup Generator Diesel Storage Tank  
 Location: Sitka, Alaska  
 Date: February 5, 2015

Description: Perform an API 653 "Out of Service" Inspection on the City and Borough of Sitka's diesel storage tank located in Sitka, Alaska. The Taku API Inspector(s) shall provide oversight of the inspections and generate the inspection reports for the 35' diameter by 30' tall above grade storage tank. The inspection shall include MFE, UT, MT, Vacuum Box & visual inspections where appropriate. The inspection reports will include all necessary calculations, drawings, conclusions and recommendations.

This estimate is for the inspection and tank cleaning (assumed the floor is coated) only and it assumes the work can be performed in one trip (2 field days). Taku will provide ventilation, gas detection and a hole watch. The tank will be drained down to the bottom of the sump prior to the arrival of our cleaning crew. Any standby/excess time (due to weather, flight days, excessive damage, repairs, or the tank not being sufficiently empty, etc.) will be in addition to this estimate at a rate of \$1,525 per day per Taku field technician, \$1,500 per day for the NDE technicians, \$750 per day for equipment, plus expenses. **The Owner will be responsible for all aspects of draining down the tank and disposing of any hazardous materials (approximately two 55-gallon drums of rags, sorbents, etc.). This is a time and materials estimate and it does not include repair time for the tank.**

LABOR					
Task	Description	Principal Engineer	Engineer III	Engineer II	Subtotal
1.0	<b>Preparation</b>				
1.1	Planning/Scheduling	1 hrs.	2 hrs.		3 hrs.
	<i>Task Total</i>				<i>3 hrs.</i>
2.0	<b>Mobilization</b>		10 hrs.		<i>10 hrs.</i>
3.0	<b>API 653 "Out of Service" Tank Inspections</b>				
3.1	Tank Inspection (35' Diameter by 30' Tall)	1 hrs.	24 hrs.		25 hrs.
	<i>Task Total</i>				<i>25 hrs.</i>
4.0	<b>Demobilization</b>		10 hrs.		<i>10 hrs.</i>
5.0	<b>Reporting/Documentation</b>				
5.1	Populate NDT Data Sheets		8 hrs.		8 hrs.
5.2	Generating Tank Rollout Drawings		2 hrs.	8 hrs.	10 hrs.
5.3	Generating Draft 653 Inspection Reports	2 hrs.	24 hrs.		26 hrs.
5.4	Final Report Revisions (2)	1 hrs.	4 hrs.		5 hrs.
	<i>Task Total</i>				<i>49 hrs.</i>
6.0	<b>Misc. Meetings &amp; Communication</b>	1 hrs.	2 hrs.		3 hrs.
	<i>Task Total</i>				<i>3 hrs.</i>
	Subtotal Hours:	6 hrs.	86 hrs.	8 hrs.	100 hrs.
	Subtotal Cost:	\$1,248	\$13,094	\$1,056	\$15,397
<b>Total Labor:</b>		<b>\$15,397</b>			

EXPENSES					
Item	Description	Quantity		Rate	Item Total
1	Per Diem	4	Day	\$ 55	\$ 220
2	Air Fare Anchorage to Sitka Roundtrip	1	Roundtrip	\$ 640	\$ 640
3	Lodging	3	Nights	\$ 200	\$ 600
4	Rental Car	4	Unit	\$ 155	\$ 620
5	Airport Parking/Taxis	2	Day/Unit	\$ 25	\$ 50
6	Equipment Freight Charges	1	One Way	\$ 150	\$ 150
<b>Total Expenses:</b>				<b>\$2,280</b>	

SUB-CONTRACTOR				
Item	Description	Rate	10% Markup	Item Total
1	NDT Support	\$17,966	\$1,797	\$19,762
2	Tank Cleaning	\$11,935	\$1,194	\$13,129
<b>Total Sub-Contractor Fees:</b>			<b>\$32,891</b>	

<b>TOTAL JOB COST:</b>	<b>\$50,568</b>
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January 9, 2015

Chris Brewton  
Utility Director – Electric Department, City of Sitka  
105 Jarvis Street  
Sitka, Alaska 99835

*Delivered via email to:  
chrisb@cityofsitka.com*

SUBJECT: Inspection of Power Plant Tank  
EEI Proposal No. 8342

Dear Chris:

Enterprise Engineering, Inc. (EEI) is pleased to submit this proposal to provide tank cleaning and inspection services for the 210,000 gallon power plant tank.

**STATEMENT OF INTENT**

The scope of the project is based on information provided during our October 21, 2014 site meeting and subsequent emails. This Letter of Understanding presents our understanding of the required scope of services and our fees for providing these services. Please inform us if your understanding is other than described herein.

In general, the project will provide an API 653 Inspection of the 210,000 gallon tank at the power plant. A tank cleaning subcontractor, retained by EEI, will be responsible for cleaning and preparing the tank for the internal portion of the inspection.

**SCOPE OF SERVICES**

Please refer to the enclosed Attachment A for a description of the extents of the internal and external inspection.

**EXCLUSIONS**

- 1. The design of repairs to correct observed deficiencies.
- 2. Permit fees.

**COMPENSATION**

EEI proposes to undertake the cleaning and inspection work on a lump sum basis as described below. It should be noted that the tank cleaning operations will require the use of diesel powered equipment such as the vacuum truck, compressors and generators. The fee estimate includes a 16% fuel surcharge based on historical data. It may be necessary to revisit the surcharge in the event that there is a significant rise in fuel prices.

Tank Cleaning (Based on disposing of 12,000 gallons of residual fuel)	\$73,300
Mobilization, API 653 Inspection, Demobilization & Return to Service	\$21,100
Inspection Report	<u>\$ 5,100</u>
<b>Total</b>	<b>\$99,500</b>

If the City of Sitka were to provide tankage for the remaining 12,000 gallons of product, the disposal costs would be limited to sludge removal and disposal of contaminated cleaning supplies. The cleaning contractor would still pump the remaining product as directed. Offsetting the shipping and disposal costs, the fee would be revised as follows:

Tank Cleaning	\$40,300
Mobilization, API 653 Inspection, Demobilization and Return to Service	\$21,100
Inspection Report	\$ 5,100
<b>Total</b>	<b>\$66,500</b>

### ADDITIONAL REIMBURSABLE SERVICES

Upon your written authorization, we would be pleased to provide services not included in the scope of services. An estimate of the time involved can be provided if requested. Additional reimbursable services will be charged on a time charge and expense basis in accordance with our standard fee schedule, or if you prefer, a lump sum proposal can be provided.

### SCHEDULE

It is understood that the work must be completed February 2015. Specific dates can be worked out after receipt of a Notice to Proceed (NTP).

### GENERAL CONDITIONS

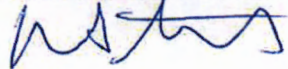
We have reviewed an example of your standard contract and find the terms acceptable.

### AUTHORIZATION

Please sign and return one copy of this document to Enterprise Engineering, Inc. so that we may begin work on this project. Please call if you have any questions. The opportunity to propose Consulting Engineering services is appreciated.

EEI looks forward to working with you on this project. If you have any questions please do not hesitate to call.

Sincerely,  
**ENTERPRISE ENGINEERING, INC.**



David A. Stchyrba, P.E.  
Project Engineer – Structural

Approved by:  
**ENTERPRISE ENGINEERING, INC.**



Kevin S. Murphy, P.E.  
Principal

Encl. Attachment A Scope of Services

ACCEPTED BY: \_\_\_\_\_

DATE: \_\_\_\_\_

FOR: \_\_\_\_\_



**ATTACHMENT A –SCOPE OF SERVICES**  
**CITY OF SITKA: INSPECTION & CLEANING OF POWER PLANT TANK**  
**SITKA, ALASKA**

**Project Description**

The city of Sitka intends to take the 210,000 gallon tank out of service for the purpose of having an internal and external API 653 inspection performed. This proposal includes both cleaning and inspection services.

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**API 653 OUT-OF-SERVICE INSPECTION**

The out-of-service inspection will follow the latest edition of API Standard 653, *Tank Inspection, Repair, Alteration, and Reconstruction*. Reference will also be made to the guidelines contained in API Recommended Practice 575, *Inspection of Atmospheric & Low-Pressure Storage Tanks*.

**API 653 Appendix C Tank Inspection Checklist**

EEI will perform the activities detailed in the appropriate API 653 Appendix C Tank Inspection Checklist. The applicable items within the checklist will be incorporated into the final report.

**Nondestructive Examination**

***Visual Inspection (VE)***

EEI will visually inspect the overall tank condition. Externally, this includes plates, coating, welds, appurtenances, gauges, foundation, stairways, nozzles, grounding, anchor bolts, wind girder, external coating, etc. EEI will visually inspect the internal tank components, including the roof underside, rafters, support columns, sumps, internal coating, etc. EEI will also inspect and describe the tank's ability to remove water bottoms (i.e., pipe size and height from floor).

***Ultrasonic Thickness (UT) Assessment***

EEI will perform UT assessment of the tank shell, floor, roof, nozzles and reinforcing plates. UT measurements will be taken around the first course and on accessible upper course locations. All UT readings will be documented in the inspection report. Where corrosion has been noted, the report will include a determination of shell/floor/roof thickness acceptability and remaining life calculations.

***Magnetic Flux Leakage (MFL) Assessment***

EEI will perform MFL assessment on all accessible areas of the tank floor. Topside or underside corrosion indications will be verified by VE and/or UT assessment. In areas that are inaccessible by scanning, a sufficient number of UT readings shall be taken to help quantify the floor underside condition. All MFL readings will be documented in the inspection report, including a determination of floor thickness acceptability and remaining life calculation, as applicable.

***Vacuum Box Testing (VB) Assessment***

For uncoated tank floors and shells, VB assessment will be performed on all floor welds and internal shell-to-floor welds. The VB results will be documented in the inspection report.

## **Tank Appurtenances**

EEI will examine the tank nozzles, manways, and other appurtenances for adequacy and compliance with applicable standards, including such details as wall thickness, reinforcement, weld spacing, and corrosion allowance. Tank accessories such as relief valves and level gauges shall be examined for general condition. Shell nozzles and reinforcements shall be ultrasonically thickness tested for determination of current and minimum required thicknesses, corrosion rates, and remaining life. EEI will visually inspect the tank skin valves for any signs of leakage and document the manufacturer, class rating, and type of valve.

The report will identify the present methods / systems for level alarms, water draw-off, Automatic Tank Gauging (ATG), and venting systems. EEI will gather operability information from on-site personnel, verifying system operability where possible (with the exception of ATG systems).

## **Coating Assessment**

EEI will provide a general assessment of the coating. Dry Film Thickness (DFT) readings will be taken at accessible tank locations to determine the average internal floor coating thickness and external shell and roof coating thickness, as applicable.

## **Settlement Survey and Evaluation**

A shell and floor edge settlement survey will be performed to identify edge settlement, differential settlement, and/or planar tilt. The results will be detailed in the body of the inspection report. The calculations will include a graphical representation of this settlement and whether or not the results meet or exceed the maximum allowable settlement.

## **Tank Information / Drawings / Photography**

EEI will prepare drawings including floor, shell and roof plate orientations, stairways, appurtenances, manways, vents, and other significant tank details.

The inspection report will include color photographs to display areas of interest with a descriptive caption for each image. The photographs will include the general condition and vicinity of the tank, field identification / markings of the tank, access points, secondary containment, general overall construction, and any discrepancies found.

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## **TANK CLEANING**

EEI will retain the services of NRC Alaska (formerly Emerald Alaska) to clean the tank. As discussed, the City of Sitka will drain down the tank with 12,000 gallons remaining for contractor removal and disposal. NRC Alaska will blind the tank, provide lighting, ventilation and a hole watch for the duration of the inspection. As part of the demobilization effort, NRC Alaska will reinstall the manway cover plate including replacement of the gasket and bolts. In the event that no significant repairs are identified, the City of Sitka will be able to return the tank directly to service.

As a cost savings, EEI will not be on site during the cleaning operations. EEI will co-ordinate with NRC and the City of Sitka for arranging contractor access to the site.



February 2, 2015  
GNE #P15003.001

City and Borough of Sitka  
Electric Department  
105 Jarvis Street  
Sitka, Alaska 99835

Attention: Ms. Erin Clay, Project Manager

Subject: Engineering Proposal for API 653 Out-of-Service Tank Inspection,  
City and Borough of Sitka, AK

Dear Ms. Clay:

Great Northern Engineering (GNE) is pleased to offer our services for the API 653 internal tank inspection of the existing 216,000-gallon diesel fuel API-650 tank located at your facility in Sitka, Alaska. The time interval to this inspection was based on the data collected and calculations performed during the previous inspection in 1996 by Daniel Jones. This will be a complete "Out-of-Service" inspection in accordance with the requirements of API 653. The results of the inspection will be submitted to the facility owner for the record keeping and compliance with the regulatory agencies. The inspection and reporting documents will be developed and certified by an API Inspector. The following information provides a task outline and a corresponding fee schedule for this project.

### **TANK INSPECTION SCOPE OF WORK**

#### **Task C1: API 653 "Out-of-Service" Internal Inspection**

- C1.1: API 653 Inspection Tank 1 – 216,000 gal Diesel, 35' D x 30' H.
- C1.2: API 653 Tank Bottom Examination consisting of MFE and/or UT and Tank Bottom Settlement survey.
- C1.3: Submission of API 653 Inspection Report.

#### **Deliverables:**

- Item 1: Submittal of Great Northern Engineering Inspection Reports for the tank with collected data, observations, calculations, and recommendations for inclusion into the facility API 653 Tank History Records.

**Exclusions:**

- Item 1: Design engineering required for tank repairs as a result of the inspection including alterations, or additional inspections outside of the API 653 requirements. These tasks could be provided should the Client request them based on a revised task outline either hard dollar or on a time and expenses basis. Any work provided on a time and expenses basis would be billed in accordance with the current GNE Rate Schedule.
- Item 2: Permitting or coordination with local, State, or Federal permitting agencies.
- Item 3: A formal coating thickness inspection or report. GNE will identify the coatings and visual condition of the internal and external coatings, as well as document the general thickness based on a small number of measurements.
- Item 4: Inspection of additional tankage, dikes, piping, and appurtenances.
- Item 5: Review of facility SPCC plans for conformance. GNE can provide this service under a separate proposal if desired.
- Item 6: Tanks shall be drained, cleaned, ventilated and by others at least 24 hours prior to scheduled inspection. Tank floors shall be free of oil, grease, dirt, standing fuel or water. Measurement of tank environment, to include Oxygen content and LEL, shall be provided by others.
- Item 7: Delays in access to the tank interior for the start of inspection exceeding 2 hours may be billed as standby time at a combined rate of \$300.00 per hour.

**TANK INSPECTION FEE PROPOSAL**

**Total for Tasks C1.1 thru C1.3.....\$24,100.00**

We appreciate the opportunity to propose our services for this project. If you have any questions regarding this proposal, or need additional information, please contact me at (907) 745-6988 or by email at [dkorpi@gne-ak.com](mailto:dkorpi@gne-ak.com) or [gne@mtaonline.net](mailto:gne@mtaonline.net).

Sincerely,

  
Dave Korpi  
Project Engineer  
API #25965

DK/bao