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NAS CECIL FIELD, FL
5090.3a

TECHNICAL MEMORANDUM REGARDING OPERABLE UNIT 2 (OU 2) SITE 5 BIOCELL
LONG TERM WATER MANAGEMENT AND CONTINGENCY PLAN REVISION 2 WITH
ATTACHMENTS NAS CECIL FIELD FL
6/17/1996
ABB ENVIRONMENTAL SERVICES INC

32215-002

18.02.02.0016

TECHNICAL MEMORANDUM

STEVE WILSON

TO: Site 5 Sub-committee
Mark Davidson - Southdiv
John Dingwall, P.E. - NASCF
Greg Brown, P.E. - FDEP
Hermann Bauer - BEI
Mike Deliz, P.G. - FDEP
Debbie Vaughn-Wright - USEPA

FROM: Bob Lunardini, P.E. - ABB-ES *RCL*

DATE: 02 May 1996, Original with all attachments
03 June 1996, Revision 1 w/out attachments
17 June 1996, Revision 2 w/new attachments

SUBJECT: NAS Cecil Field, OU 2, Site 5 Biocell Long-term Water Management and Contingency Plan
Revision 2

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Purpose A water balance submitted February 12, 1996 indicated that removal of excess water from the biocell will be required up to five times annually. The storage capacity of the biocell is 425,000 gallons (50,000 gallon storage tank plus the 375,000 gallon storage capacity of the sand drainage layer). This memo proposes a long-term excess water management plan along with a contingency plan to treat excess water from the Site 5 biocell if analytical results collected prior to removal indicate that excess water is not safe to discharge.

Long-term Management Plan The biocell will be in operation for at least another 1.5 years. The long-term excess water management plan is to discharge excess water into the woods to the east of the biocell. This will occur only if analytical data collected prior to discharge indicates the water will present no harm to human health or the environment. Prior to discharge of every 100,000 gallons a water sample will be collected from the storage tank for offsite laboratory analyses. The analytical suite will be Purgeable Aromatics (EPA Method 602), Total Petroleum Hydrocarbons (EPA Method 418.1), and Turbidity (EPA Method 180.1). If analytical results are below Florida Surface Water Quality Standards (FAC 17-302) for Class III fresh water or applicable Federal Standards and Guidance, discharge will be allowed. Table 1 lists chemical-specific standards and guidance. While pumping, the point of discharge will be moved every two hours to prevent sheet flow into Lake Fretwell. Also, while pumping, turbidity, pH, conductivity, and temperature will be monitored in the field once every two hours. Turbidity will be monitored using a Lamotte

2008 Turbidity Meter or equivalent. There will be no discharge into standing waters.

Background On January 3, 1996 water from the biocell was sampled and analyzed for the following.

	USEPA Method
Halogenated Volatile Organics	8010
Aromatic Volatile Organics	8020
Semivolatile Organics	8270
Organochlorine Pesticides and PCBs	8080
Organophosphorus Pesticides	8141
Chlorinated Herbicides	8150
Total Petroleum Hydrocarbons	418.1
RCRA Metals, Hex. Chromium	200.7, 245.1, SM3128
Dissolved Oxygen	360.1
TSS	160.2

Results indicated the presence of two compounds above reporting limits; toluene at 5 ug/l and 3 & 4 methylphenol at 13 ug/l. Based on these results the BCT agreed to allow direct discharge of excess water from the 50,000 gallon storage tank onto the ground east of the biocell. Discharge of approximately 375,000 gallons occurred in late January with the discharge point being moved to prevent sheet flow into Lake Fretwell.

On January 21, 1996 water from the 50,000 gallon storage tank was sampled and analyzed for the following.

	USEPA Method
Volatile Aromatics	602
Total Petroleum Hydrocarbons	418.1
Turbidity	180.1

Turbidity was 36.2 NTU, all other results were non-detect.

Water from the 50,000 gallon storage tank was sampled and analyzed for the same parameters again on February 21 and March 18, 1996. Turbidity was 49 and 39.3 NTU respectively, all other results were non-detect. Analytical results from the last three sampling events are attached. See the January 17, 1996 Technical Memorandum *Disposal Options for Excess Water at the Site 5 Biocell* for the initial analytical results.

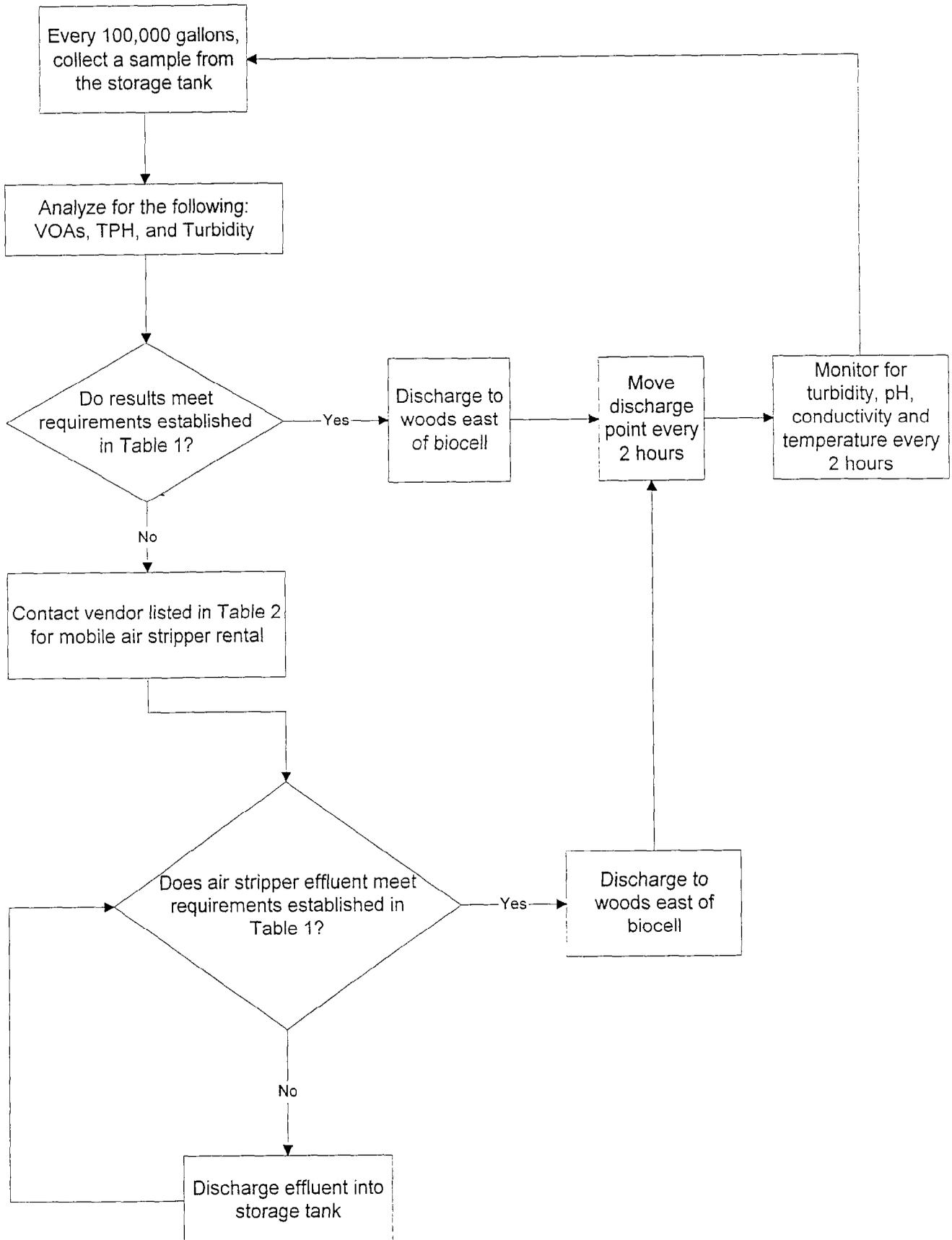
Contingency Plan If future analytical results indicate the need for treatment prior to discharge, a temporary treatment system will be mobilized to the site. The attached decision tree displays this course of action. The treatment system will consist of a mobile air stripper and a recirculation pump. Analysis will be performed onsite during treatment to assure that the discharge criteria are met. Flow rates and other design parameters such as the air to

water ratio will be determined based on the analytical results and treatment capacity of the unit selected.

For budgetary purposes, a 25-250 gpm capacity was assumed with an influent concentration of 1 ppm Total VOAs. A mobile, air stripping unit meeting these requirements can be leased on a daily basis from local vendors. The estimated cost for a one day rental is \$1,000 which includes analytical equipment and a technician. Excess water will be pumped through the air stripper before discharge to the woods. Air emissions are not expected to present a problem for this temporary discharge but will be monitored during operation. No other waste streams will be generated. All cost estimates are attached.

If implemented influent and effluent sampling and analyses will be required.

Site 5 Decision Tree for Excess Water Discharge



**Table 1
Chemical-Specific Standards and Guidance**

Naval Air Station Cecil Field
Jacksonville, Florida

EPA Test Method 602, Volatile Aromatics

Compound	Guidance Concentration $\mu\text{g}/\ell$	Source
Methyl tert-butyl ether	50	Florida Standards and Guidance: Ground Water Guidance Concentrations
Benzene	71.28	Florida Standards and Guidance: Class III Fresh/Marine
Toluene	1,000	Federal Standards and Guidance: Safe Drinking Water Act (SDWA)
Chlorobenzene	100	Federal Standards and Guidance: Safe Drinking Water Act (SDWA)
Ethylbenzene	700	Federal Standards and Guidance: Safe Drinking Water Act (SDWA)
Xylenes (total)	10,000	Federal Standards and Guidance: Safe Drinking Water Act (SDWA)
1,3-Dichlorobenzene	50	Federal Standards and Guidance: CWA Ambient Water Quality Criteria For Protection of Fresh Water Aquatic Life
1,4-Dichlorobenzene	50	Federal Standards and Guidance: CWA Ambient Water Quality Criteria For Protection of Fresh Water Aquatic Life
1,2-Dichlorobenzene	50	Federal Standards and Guidance: CWA Ambient Water Quality Criteria For Protection of Fresh Water Aquatic Life

EPA Test Method 418.1, Total Recoverable Petroleum Hydrocarbons

Total Recoverable Petroleum Hydrocarbons	5 mg/ ℓ	Florida Standards and Guidance: No Further Action Criteria and current rule (Chapter 62-770, F.A.C.)
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Notes: Turbidity will be measured by EPA Test Method 180.1 as a qualitative indicator.

Table 2
Vendor Information

Name: Petroleum Recovery Systems, Incorporated

Address: 100 South Jackson Avenue
Jacksonville, Florida 32220

Phone: 904-786-8495

Contact: Fred Hough, President

Item: Deliver to the site one mobile air stripper, one GC, and one technician to operate the air strip and GC. Sample effluent every hour for the first four hours and once every 12 hours thereafter.

Cost: \$1000 per day



Petroleum Recovery Systems
Incorporated

June 05, 1996

Mr. Joe Ullo
ABB Environmental Services, Inc.
2590 Executive Center Drive E.
Tallahassee, Florida 32301

Dear Mr. Ullo:

QUOTE FOR: 1-High Volume Hydrocarbon Sparger w/
Gas Chromatograph and Technician.

Zone 1 area (see attached map)
\$1,000.00 each day (daily rate begins when technician leaves the
company yard and ends when he returns to the company yard).

The following testing for effluent discharge water: One test
every hour for the first 4 hours. Then one test every 12 hours
for the duration of the job.

If any outside lab fees: Cost + 15%

Thank you

Petroleum Recovery Systems, Inc.

Fred C. Hough,
President

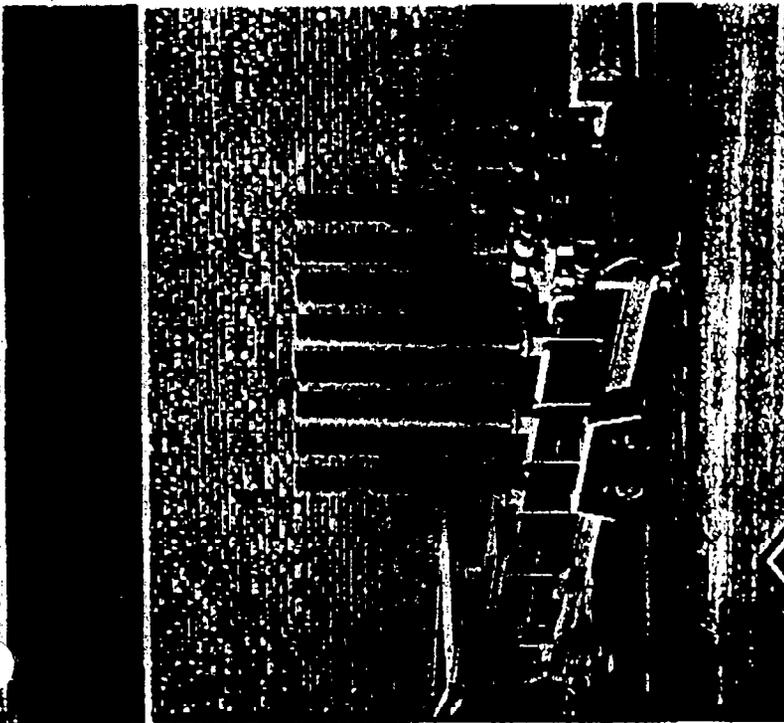
Petroleum Re
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Recovery*



Petroleum Recovery Systems
Incorporated

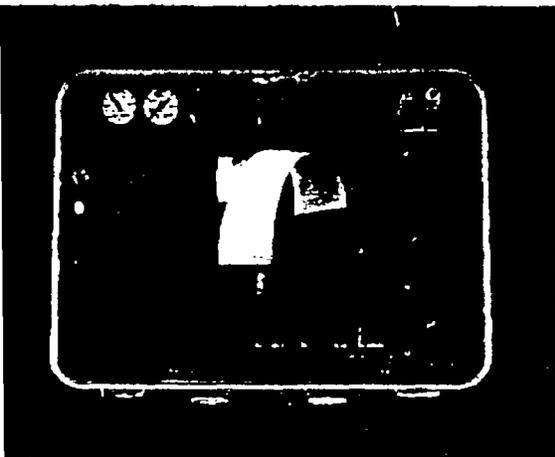
100 South Jackson Ave.
Jacksonville, Florida 32220



**Hydrocarbon Sparger
Characteristic's:**

- ◆ 4 feet by 6 feet Oil water separator 500 Gallon capacity
- ◆ 4 feet to 15 feet Horizontal Sparging Tubes
- ◆ 4 - 250 CFM Blowers
- ◆ 12 Exhaust Towers
- ◆ Flow Rate Maximum 450 GPM Discharge connection 4" or 6" cam lock

Petroleum Recovery Systems has a wide range of applications for Sparging and Gas Chromatograph Testing. Some applications include Sparging for permanent recovery system start-up and pump test. Petroleum Recovery Systems also provides daily services for Technician and Gas Chromatograph. Petroleum Recovery Systems implements state of the art analytical equipment for testing influent and effluent water from hydrocarbon Spargers. Petroleum Recovery Systems personnel are factory trained technicians. The equipment used is a Photovac Portable 10S Plus Gas Chromatograph and a 10S50 Gas Chromatograph. The Gas



Chromatograph's are used in detecting Betex. For diesel fuel, Petroleum Recovery Systems uses Sentex Scentoscreen Plus Gas Chromatograph for detection of Napthalene. The Scentoscreen Plus Gas Chromatograph has an Isothermal Oven which heats to 180 degrees celsius.

Petroleum Recovery Systems Portable Hydrocarbon Spargers are true portable units. It takes only 15 minutes set up time and 15 minutes breakdown time. Our system has its own diesel powered generator, which supplies electric power to our units; also, four independent 3-horsepower electric motors. Our electric motors power four independent forced air blowers. Each blower produces 250 cubic feet of air, totaling 1000 cubic feet per minute. Our hydrocarbon Sparger has an oil-water separator unit.

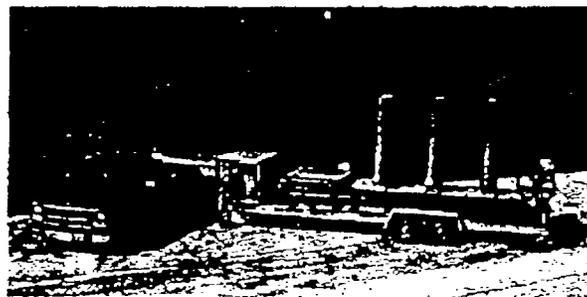
Specifications:

Physical Characteristics

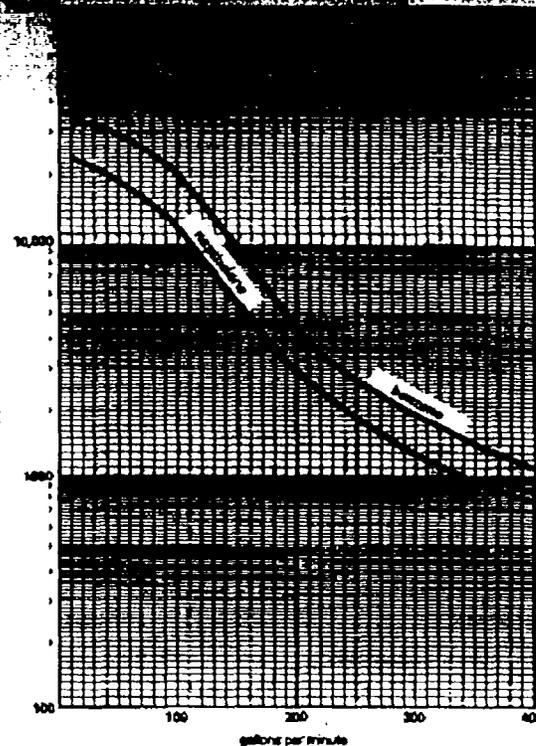
- ◆ Dimensions: Height 12'• 6"
- Width 7'• 6"
- Length 34'• 0"

Electrical Characteristics

- ◆ Power Plant 14kw (Diesel)
- ◆ Voltage 220
- ◆ (4) 3-Horsepower Motors



Maximum influent concentration (in parts per billion-ppb) to achieve a 1ppb effluent concentration



Portable Air Sparger (Stripper) Capabilities



Petroleum Recovery Systems
Incorporated

100 South Jackson Avenue
Jacksonville, Florida 32220
Fax (904) 783-2166 • Tel (904) 786-8495