

**NM1 - 5**

**APPROVALS**

**YEAR(S):**

**2009**

---

**Hansen, Edward J., EMNRD**

---

**From:** Hansen, Edward J., EMNRD  
**Sent:** Tuesday, June 16, 2009 4:02 PM  
**To:** bdinc@digii.net  
**Cc:** WBCSW@aol.com; DGray@gordonenvironmental.com; 'jwjengr@aol.com'; Powell, Brandon, EMNRD; Jones, Brad A., EMNRD  
**Subject:** RE: 72-hour notification

Dear Dr. Volkerding:

The OCD hereby acknowledges your notice to the OCD as required by 19.15.36.17.B.(10) NMAC. Please be aware that the installation of the primary liner at Pond #3, Basin Disposal, Inc. surface waste management facility cannot commence until 3:08 p.m., Friday, June 17, 2009. If you have any questions regarding this matter, please contact me at 505-476-3489.

Edward J. Hansen  
Hydrologist  
Environmental Bureau

---

**From:** jwjengr@aol.com [mailto:jwjengr@aol.com]  
**Sent:** Tuesday, June 16, 2009 3:08 PM  
**To:** Hansen, Edward J., EMNRD  
**Cc:** WBCSW@aol.com; DGray@gordonenvironmental.com; bdinc@digii.net  
**Subject:** 72-hour notification

Edward, pursuant to 19.15.36.17.B.(10); the required 72-hour notification is given prior to the primary liner's installation at the Basin Disposal, Inc. surface waste management facility in Bloomfield, NM. The liner contractor will complete the secondary liner on Thursday afternoon and begin construction of the geonet and sumps in the leak detection system. This activity will be completed by Friday afternoon June 17, 2009 and will be available for an OCD representative for inspection that afternoon. It is anticipated the primary liner installation will commence on June 22, 2009.

Please call me at 505-280-2823 if you have any question or comments. Additionally, you may contact Don Gray at 505-401-8628 for updates concerning installation progress in the field and scheduling the inspection.

Jim

---

**A Good Credit Score is 700 or Above. See yours in just 2 easy steps!**

---

This inbound email has been scanned by the MessageLabs Email Security System.

---

## Hansen, Edward J., EMNRD

---

**From:** Pamela Gonzales [PGonzales@gordonenvironmental.com]  
**Sent:** Wednesday, May 13, 2009 10:34 AM  
**To:** Hansen, Edward J., EMNRD  
**Cc:** John Volkerding; jwjengr@aol.com  
**Subject:** Basin - Pond 3 Construction  
**Attachments:** Basin-Hansen-51209.doc

Dear Ed,  
Attached is a memo regarding Basin Disposal, Inc. Pond 3 Construction.

Thank you,

I. Keith Gordon, P.E.  
Pamela Gonzales  
Gordon Environmental, Inc.  
213 S. Camino del Pueblo  
Bernalillo, NM 87004  
P: 505-867-6990  
F: 505-867-6991



---

This inbound email has been scanned by the MessageLabs Email Security System.

---

# GORDON ENVIRONMENTAL, INC.

---

**TO:** Mr. Edward Hansen; OCD

**FROM:** Keith Gordon, P.E.; GEI  
Mike Heinstejn, P.E.; GEI

**CC:** John Volkerding; Basin Disposal, Inc.  
Jim Jordan, P.E.; JEI

**DATE:** May 13, 2009

**SUBJECT:** Basin Disposal, Inc. [520.01.01/03]  
Pond 3 Construction

---

We appreciate your expeditious review of the 12/08 Application for Permit Modification for Basin Disposal, Inc. (BDI). The comments provided to us in discussions, and in your RAI are very constructive, and we are working on the comprehensive response. We recommend that we provide you a red-line/strikeout version for your review; and then meet to discuss the updates.

In the meantime, we are in the process of preparing for Pond 3 Construction (timeline previously provided). As you were kind enough to share your thoughts on the design and construction prior to the RAI, we have been able to incorporate the appropriate revisions into the Permit Plans, Construction Plans, and Technical Specifications.

Narrative updates will be provided in the proposed red-line/strikeout response described above. We will be providing you with updated Permit Plans, in advance of Pond 3 construction, addressing the following design elements (listed according to your RAI comment sequence):

*Comment 5: Please describe how the liner will be protected from excessive hydrostatic force or mechanical damage at a point of discharge into or suction from the lined ponds. 19.15.36.17.A. NMAC*

We are planning to weld a second sheet of 60 mil HDPE above the primary liner on the area where piping will discharge into Pond 3 (22.5' x 36'; Plan Sheet 3) to protect against hydrostatic or mechanical force. No suction occurs against the liner.

*Comment 6: Please provide documentation that if HDPE (SDR 11) riser pipes are used the required minimum wall thickness of schedule 80 will be met. 19.15.36.17.B.(9) NMAC*

*Comment 21: In Application Volume III, Section 1 (Engineering Design), Subsection 7.0 please note the citation for the HDPE piping thickness equivalency demonstration. 19.15.36.17.B.(9) NMAC*

The engineering details (and text) have been updated to specify HDPE SDR 11, which have a superior wall thickness and track record to PVC SCH 80 (Plan Sheet 7).

*Comment 8: In Application Volume II, Section 1 (Operations, Inspection and Maintenance Plan), Subsection 7.0 please indicate that the sumps will be pump dry prior to acceptance of waste. In addition, please expand the procedures to prevent leakage from the sumps, and procedure to be followed if liquid is discovered in the sumps (e.g., GCL placement under the sumps, increased liquids measurement and pumping frequencies, possible sump liquids and/or groundwater monitoring, proposed action limit for liner inspection and potential repairs, specific action limit for notification of OCD within 24 hours, etc.). 19.15.36.17.C.(2)*

A geocomposite clay liner (GCL) has been added under the footprint of each of the sump (Plan Sheets 3 and 7). Fluid management will be addressed in the red-line/strikeout narrative.

*Comment 24: In Application Volume III, Section 1 (Engineering Design), Attachments please indicate that the riser pipes will be covered with select material (e.g., select sand). (possible permit condition)*

The leak detection sump riser pipes will be backfilled using select clean sandy material between the primary and secondary liners. In the Permit Drawings, Detail 3 on Sheet 7 has been updated to reflect the use of select sandy soils in the riser pipe trenches to support the primary liner.

We appreciate your input on the BDI Permit Application and Pond 3 Construction Project. The narrative will elaborate on the information provided in the updated Permit Plans, which will be provided to you by May 21, 2009.

## Hansen, Edward J., EMNRD

---

**From:** Pamela Gonzales [PGonzales@gordonenvironmental.com]  
**Sent:** Thursday, April 30, 2009 11:22 AM  
**To:** Hansen, Edward J., EMNRD  
**Cc:** John Volkerding; jwjengr@aol.com  
**Subject:** Basin-Pond 3 Construction  
**Attachments:** Basin-PreSchedule.pdf

Ed,  
Attached is the Draft Timeline for the Basin Pond 3 Construction. We look forward to working with you on the Pond Construction Project.

Thank you,

I. Keith Gordon, P.E.  
Pamela Gonzales  
Gordon Environmental, Inc.  
213 S. Camino del Pueblo  
Bernalillo, NM 87004  
P: 505-867-6990  
F: 505-867-6991



---

This inbound email has been scanned by the MessageLabs Email Security System.

---



## Hansen, Edward J., EMNRD

---

**From:** Hansen, Edward J., EMNRD  
**Sent:** Tuesday, March 10, 2009 12:13 PM  
**To:** 'bdinc@digii.net'  
**Cc:** Price, Wayne, EMNRD; 'PGonzales@gordonenvironmental.com'; 'jwjengr@aol.com'  
**Subject:** FW: Basin Disposal - Temporary Pond - Approval for construction and operation of Pond #3  
**Attachments:** BDI-TempPond.pdf

Dear Dr. Volkerding:

The New Mexico Oil Conservation Division (OCD) has received the request for construction and operation of a temporary evaporation pond, dated March 9, 2009, and has conducted a review of the request. The Request, submitted for the above-referenced site, indicates that the construction and operation of the temporary pond (Pond #3) as specified in the Request would be considered a minor modification under 19.15.36 NMAC (Part 36). However, due to the temporary status of the proposed pond, the OCD has concerns regarding the safety of public health and the environment. Therefore, the OCD hereby conditionally approves the construction and operation of Pond #3 at the Basin Disposal facility (NM1-0005) in accordance with 19.15.36 NMAC:

Basin Disposal, Inc. (Basin) must construct and operate Pond #3 as specified in the Request.

Basin must construct the northern drainage features (including a proportional capacity of the detention basin) as specified in the Application for Modification (December 10, 2008) to the Permit for Basin Disposal, Inc.

Basin must submit to the Environmental Bureau of the OCD a milestone schedule for construction activities at least 14 days prior to construction of the temporary pond.

Basin must closed the temporary pond in accordance with Part 36 if the pond is not permitted as a permanent part of the facility under the Application for Modification (December 10, 2008) to the Permit for Basin Disposal, Inc.

Please be advised that OCD approval of this Request does not relieve the owner/operator of responsibility should operations pose a threat to ground water, surface water, human health or the environment. In addition, OCD approval does not relieve the owner/operator of responsibility for compliance with any OCD, federal, state, or local laws and/or regulations.

If you have any questions regarding this matter, please contact me at 505-476-3489.

Edward J. Hansen  
Hydrologist  
Environmental Bureau

---

**From:** Pamela Gonzales [mailto:PGonzales@gordonenvironmental.com]  
**Sent:** Monday, March 09, 2009 2:42 PM  
**To:** Hansen, Edward J., EMNRD  
**Subject:** Basin Disposal - Temporary Pond

Dear Ed,  
Attached is a letter regarding Basin Disposal, Inc. Temporary Pond Installation.

Thank you,

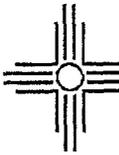
I. Keith Gordon, P.E.  
Pamela Gonzales  
Gordon Environmental, Inc.  
213 S. Camino del Pueblo  
Bernalillo, NM 87004  
P: 505-867-6990  
F: 505-867-6991



---

This inbound email has been scanned by the MessageLabs Email Security System.

---



March 9, 2009

Submitted via e-mail  
Hard copy to follow

Mr. Edward J. Hansen  
Hydrologist  
Environmental Bureau  
Oil Conservation Division  
NM Energy, Minerals and Natural  
Resources Department  
1220 South St. Francis Dr.  
Santa Fe, NM 87505

Re: Basin Disposal, Inc. [OCD Permit No. 1-0005]  
Temporary Pond Installation [520.01.01/03]

Dear Mr. Hansen,

Consistent with our recent discussions, Basin Disposal, Inc. (Basin) is requesting OCD approval for construction and operation of a temporary evaporation pond at its existing waste management facility in Bloomfield. Additional liquid waste storage/evaporation capacity is necessary to meet regional demand:

- There is an increasing trend in the production of liquid wastes requiring treatment and disposal, with a spike projected for April/May 2009.
- Other regional waste management facilities are at or near capacity.
- The rate of evaporation, and related volume reduction, is significantly reduced from October – April as a result of local temperatures.
- The Pit Rule requirement for water removal within 30 days of drill rig relocation minimizes evaporation/volume reduction in the field.

Basin is proposing to construct and operate "Pond 3" as detailed in its December 10, 2008 Application for a Surface Waste Management Facility Permit. Pond 3 is demonstrated to meet all of the applicable siting, design and operational standards of OCD 19.15.36 NMAC; and is equipped with a double geomembrane liner and leak detection system. Installation of Pond 3 will be in compliance with the Engineering Drawings (**Volume III, Section 1**) and Construction Quality Assurance (CQA) Plan (**Volume III, Section 2**). As detailed in the CQA Plan,

construction will include full-time observation and P.E. certification by a professional firm specializing in waste containment engineering.

Should OCD ultimately approve the pending Application for Permit, Pond 3 will become a permanent part of the integrated waste management system described in the Application. If the Permit Application is not approved, Pond 3 will be considered a "temporary" installation; and will be decommissioned in accordance with OCD standards. Pond 3 will not be used for liquid treatment as a temporary installation. Instead, it will serve as intermediate storage capacity between the existing Pond 1 and the injection well (**Application for Permit; Figure II.1.3, Process Flow Diagram**). Therefore, no additional sludge or odor will be produced versus the existing configuration.

We appreciate the Division's ongoing review and input regarding operations at Basin Disposal, Inc.; and look forward to an expedited response to this request. Please contact us with your questions and comments.

Very truly yours,

**Gordon Environmental, Inc.**



I. Keith Gordon, P.E.  
Principal

cc: John Volkerding, Ph.D., General Manager; Basin Disposal, Inc.  
Jim Jordan, P.E.; JEI



March 9, 2009

RECEIVED

2009 MAR 11 PM 1 31

Submitted via e-mail  
Hard copy to follow

Mr. Edward J. Hansen  
Hydrologist  
Environmental Bureau  
Oil Conservation Division  
NM Energy, Minerals and Natural  
Resources Department  
1220 South St. Francis Dr.  
Santa Fe, NM 87505

Re: Basin Disposal, Inc. [OCD Permit No. 1-0005]  
Temporary Pond Installation [520.01.01/03]

Dear Mr. Hansen,

Consistent with our recent discussions, Basin Disposal, Inc. (Basin) is requesting OCD approval for construction and operation of a temporary evaporation pond at its existing waste management facility in Bloomfield. Additional liquid waste storage/evaporation capacity is necessary to meet regional demand:

- There is an increasing trend in the production of liquid wastes requiring treatment and disposal, with a spike projected for April/May 2009.
- Other regional waste management facilities are at or near capacity.
- The rate of evaporation, and related volume reduction, is significantly reduced from October – April as a result of local temperatures.
- The Pit Rule requirement for water removal within 30 days of drill rig relocation minimizes evaporation/volume reduction in the field.

Basin is proposing to construct and operate "Pond 3" as detailed in its December 10, 2008 Application for a Surface Waste Management Facility Permit. Pond 3 is demonstrated to meet all of the applicable siting, design and operational standards of OCD 19.15.36 NMAC; and is equipped with a double geomembrane liner and leak detection system. Installation of Pond 3 will be in compliance with the Engineering Drawings (**Volume III, Section 1**) and Construction Quality Assurance (CQA) Plan (**Volume III, Section 2**). As detailed in the CQA Plan,

construction will include full-time observation and P.E. certification by a professional firm specializing in waste containment engineering.

Should OCD ultimately approve the pending Application for Permit, Pond 3 will become a permanent part of the integrated waste management system described in the Application. If the Permit Application is not approved, Pond 3 will be considered a “temporary” installation; and will be decommissioned in accordance with OCD standards. Pond 3 will not be used for liquid treatment as a temporary installation. Instead, it will serve as intermediate storage capacity between the existing Pond 1 and the injection well (**Application for Permit; Figure II.1.3, Process Flow Diagram**). Therefore, no additional sludge or odor will be produced versus the existing configuration.

We appreciate the Division’s ongoing review and input regarding operations at Basin Disposal, Inc.; and look forward to an expedited response to this request. Please contact us with your questions and comments.

Very truly yours,

**Gordon Environmental, Inc.**



I. Keith Gordon, P.E.  
Principal

cc: John Volkerding, Ph.D., General Manager; Basin Disposal, Inc.  
Jim Jordan, P.E.; JEI

**Basin Disposal, Inc**  
**Evaporation Pond Capacities**  
**[520.01.01/03]**

	<u><b>Pond 2</b></u>	<u><b>Pond 3</b></u>
1 Max. Water Level	5727.5	5717.5
2 Max. Floor Elev.	5722.3	5712.3
3 Min. Floor Elev.	5719	5709
4 Max. Fluid Depth (At Sump)	8'	8'
5 Min. Fluid Depth	5.2'	5.2'
6 Avg. Depth	6.8'	6.8'
7 Avg. Length <sup>1</sup>	380'	380'
8 Avg. Width <sup>1</sup>	160'	160'

Storage Volume:  $(160 \times 380) \div 43560 = 1.4 \text{ acre} \pm$   
 $1.4 \text{ ac} \times 6.8' = 9.5 \text{ acre-ft}$

Notes:

<sup>1</sup>measured at mid-point of water level

# GORDON ENVIRONMENTAL, INC.

---

**TO:** Mr. Brad Jones, Environmental Engineer; OCD

**FROM:** Keith Gordon, P.E.; GEI

**CC:** John Volkerding; Basin Disposal, Inc.  
Jim Jordan, P.E.; JEI

**DATE:** December 10, 2008

**SUBJECT:** Storage Volumes – Evaporation Ponds [520.01.01/01]

---

As we discussed at our meeting on 10/27/08, we have been evaluating the OCD limitation on pond storage at 10 acre-ft [§19.15.36.17.B.(12)] vs. related regulatory standards. Although a minimum freeboard of 3' is established via §19.15.36.17.B.(11), there is no definition of freeboard in Section 36; and no basis for the design calculation is specified.

However, the regulations that apply to impoundments as established by the Office of the State Engineer (OSE) also apply a limit of 10 acre-feet to differentiate between “jurisdictional” and “non-jurisdictional” water storage facilities [§19.25.12.7]. These regulations do define freeboard; and do explicitly exclude freeboard in the 10 acre-foot capacity analysis.

It is logical to infer that the Section 36 OCD Regulation considered the OSE standards in establishing the 10 acre-ft storage requirement. Without that limitation, storage/evaporation ponds > 10 acre-feet in capacity could be subject to conflicting regulations under OCD Section 36; and OSE 19.25.12. As the OSE standards provide more precise guidance on calculating the pond capacity, it would be appropriate for OCD to adopt the same equation in order to maintain consistency between related NMAC regulations.

The ramification of the 10 acre-ft storage requirement, when applied to include the 3 ft freeboard, are significant. Including the freeboard in the capacity calculation would severely limit the flexibility to optimize the system design; and dramatically increase the footprint required to accommodate the same fluid volume.

---

For instance, a 2 acre square pond (with a flat floor and a total depth of 5') would be able to store less than 4 acre-ft at a depth of 1.9' when the sideslopes are taken into consideration. Essentially, over 60% of the potential design capacity is consumed by the freeboard. This depth limitation also precludes the use of enhanced evaporation systems and more sophisticated pond designs. In fact, a one acre pond provides more than 150% of the storage capacity than that of a 2 acre pond. Using an interpretation that subtracts freeboard from the pond capacity will actually promote the construction of a much higher number of smaller (and deeper) ponds to provide the same storage volume; thus reducing evaporation surface area.

As shown on **Table 1.0**, ponds greater than 2 acres are not feasible when freeboard is subtracted from the capacity calculation (i.e., 10 ac-ft), and a 0.5 acre pond provides over twice the storage capacity as a 2-acre pond (at a fluid depth of 17'). **Table 2.0** demonstrates that maximum pond size is 5 acres when freeboard is not unnecessarily subtracted, and the two-foot minimum depth is maintained. A 4-acre pond optimizes surface area for evaporation, while minimizing the pond footprint.

More importantly, the "flat floor" design is not the preferred configuration for a double-lined basin with a leak detection system. It appears that the Section 36 standards are predicated on a 2% slope on perforated pipes within a 2' thick sand layer between the primary and secondary flexible membrane liners (i.e., 60 mil HDPE). With a requisite permeability of only  $1 \times 10^{-5}$  cm/sec, the prescribed leak detection system would not provide rapid interception of fluids.

The more appropriate design involves sloping both the primary and secondary liner at the requisite 2%, with a 200 mil geonet as the leak detection layer. Use of this design configuration, because of the slope, would further limit the storage capacity as opposed to the "flat floor" design. For the same 2 acre footprint discussed above, the water level would vary from between 0 and 3.8' deep for a rectangular basin to provide about 3.5 acre-ft of storage (sacrificing 6.5 acre-ft to freeboard). Again, enhanced evaporation would be restricted due to depth limitations.

---

In summary, the two 4-acre ponds designed for Basin Disposal, Inc. provide approximately 19 acre-ft of storage capacity on about 10 acres of total footprint. The alternative, to produce the same storage volume, is to construct 5 or 6 two-acre ponds consuming over 16 acres of total footprint. Clearly, this is not a preferred option; and would apply to any new Section 36 facilities using the geosynthetic leak detection system design. The number of ponds and increased footprint increase the potential for leaks and maintenance issues. This alternative reduces or precludes to use of enhanced evaporation techniques, increase surface emissions, and multiplies the cost of construction and operations. In summary, subtracting the 3' freeboard from the 10' acre-ft pond capacity standard has negative environmental, operations, and economic consequences; and conflicts with more definitive and pertinent NMAC standards.

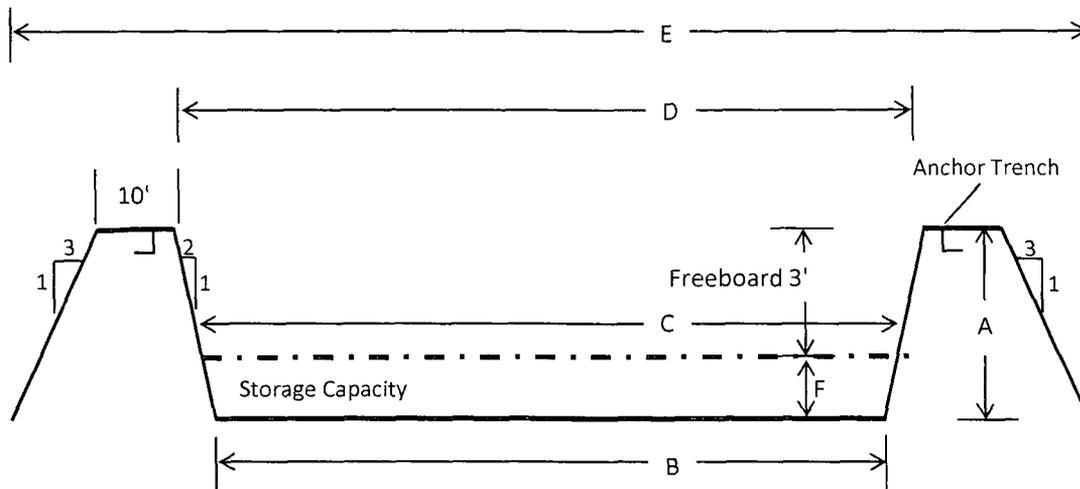
We would be pleased to provide additional detail, calculations, graphics, etc. to OCD to clarify the above conclusions.

Attachments:

- Table 1.0          Volumetrics: Subtracting 3' Freeboard for Capacity
- Table 2.0          Volumetrics: 3' Freeboard not Included in Capacity

**Basin Disposal, Inc.**  
**Evaporation Pond Evaluation Analysis**

**Table 1.0**  
**Pond Geometry**



**Table 1.0**  
**Pond Geometry**  
**Volumetrics: Subtracting 3' Freeboard from Capacity**

Description	Pond Size						
	6 AC	5 AC	4 AC	3 AC	2 AC	1 AC	0.5 AC
A = Total Depth	NF	NF	NF	NF	5'	10'	20'
B	NF	NF	NF	NF	285'	189'	108'
C	NF	NF	NF	NF	295'	209'	148'
D	NF	NF	NF	NF	305'	229'	188'
E	NF	NF	NF	NF	355'	309'	328'
F = Pond Depth (ft)	NF	NF	NF	NF	2'	7'	17'
Total Area (acres)	NF	NF	NF	NF	2.9	2.2	2.5
Storage Capacity (acre ft)	NF	NF	NF	NF	3.8	6.6	7.7
Freeboard Lost (acre ft)	NF	NF	NF	9.3	6.2	3.4	2.3
Surface Area (acres)	NF	NF	NF	NF	2.0	1.1	0.7

**Table 2.0**  
**Pond Geometry**  
**Volumetrics: 3' Freeboard not Included in Capacity**

Description	Pond Size						
	6 AC	5 AC	4 AC	3 AC	2 AC	1 AC	0.5 AC
A = Total Depth	NF	5'	5.5'	6.3'	8'	13'	23'
B	NF	457'	406'	348'	279'	183'	102'
C	NF	467'	417'	361'	295'	209'	148'
D	NF	477'	428'	374'	311'	235'	194'
E	NF	527'	481'	432'	379'	333'	352'
F = Pond Depth (ft)	1.7'	2.0'	2.5'	3.3'	5.0'	10.0'	20.0'
Total Area (acres)	NF	6.4	5.3	4.3	3.3	2.6	2.8
Storage Capacity (acre ft)	NF	10	10	10	10	10	10
Freeboard Lost (acre ft)	NF	0	0	0	0	0	0
Surface Area (acres)	NF	5.0	4.0	3.0	2.1	1.2	0.8

**Notes:**

- Maximum capacity = 10 acre-ft including freeboard
- Ponds are square with level floors
- NF = Not Feasible due to depth limitation of >1.9'
- Pond size calculated at mid-point of Pond Depth (C)