




Dewatering Discharge Contingency

Document No:	M-PR-EN-0001
Revision No:	3
Issue Date:	7 September 2009

Rev No.	Description / Comments	Prepared by	Checked by	Approved by	Date
a	Initial draft	Melissa Ee Adam Meyer	Paul Connolly		09/10/08
a	Revisions	Melissa Ee	Paul Connolly		13/10/08
0	Issued for use			Diane Dowdell	14/10/08
0a	Review and update	Adam Meyer	Paul Connolly		26/03/09
1	Issued for Use			Paul Connolly	28/04/09
1a	Include DEC comments	Adam Meyer	Paul Connolly		02/05/09
1b	Peer review		Brett McGuire Jayne Finch		08/05/09
2	Issued for Use			Paul Connolly	11/05/09
2a	Change to scope as request by EPA Updated DP locations	Adam Meyer			07/09/09
3	Issued for use		Brett McGuire	Diane Dowden	07/09/09

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OVERVIEW

Dewatering operations associated with mining the Chichester Operations require licensing approval from the Department of Water (DoW) and the Department of Environment and Conservation (DEC).

The DoW issue licences to take water pursuant to section 5C of the *Rights in Water and Irrigation Act 1914*. A 5C licence is required to extract water from an approved well.

The DEC licence allows activities to be undertaken pursuant to Regulation 5, as described under Category 6 of Part 1 of Schedule 1 of the *Environmental Protection Regulations 1987*. The activity approved under this licence is for dewatering for mining purposes. This includes the abstraction and injection of water.

Fortescue has identified possible situations in which water from dewatering activities may be in volumes in excess of what is able to be disposed of through re-use, injection and stored in ponds.

Consequently, this temporary excess water will require alternative disposal options. In seeking to ensure adequate management of potential environmental impacts from this activity, Fortescue has identified that a contingency option needs to be available.

SCOPE

This procedure applies to mine dewater discharge activities relating to groundwater abstraction from dewatering bores and in-pit sump-pumping undertaken at the Chichester Operations.

Discharge may only occur when re-use, injection, in-pit disposal, a reduction (or cessation) of dewatering rates and temporary storage are not available or have been exhausted.

Dewatering discharge at designated discharge points may only be undertaken:

- As a contingency measure;
- Where levels of Electrical Conductivity (EC) in the water to be discharged is less than 15,000 $\mu\text{S}/\text{cm}$;
- Where the turbidity level in the water to be discharged is less than 100 NTU (Nephelometric turbidity units); and
- Subject to meeting one or more of the situations described in Table 1.

Table 1: Contingency situations


No.	Situation	Maximum Down time (days)	Maximum Discharge Rate (kL)
1	Injection pipeline(s) requires maintenance/repairs.	3	20,000 kL/day
2	Injection bore(s) requires maintenance/repairs.	21	20,000 kL/day
3	Injection infrastructure taken offline for addition of injection bores.	2	20,000 kL/day
4	Pump failure at transfer ponds	1	35,000 kL/day
5	Planning and construction delays	21	20,000 kL/day

Note 1: The total volume of water that can be discharged as a result of one or more contingency situations within any 24 hour period must not exceed 20,000 kL regardless of the number of discharge events that have been approved to occur. The only exception to this rule is contingency situation No. 4, during this situation the total volume of water that can be discharged in 24 hours is 35,000 kL.

Note 2: An approved discharge event may only occur for the maximum allowable days as detailed above regardless of any hiatus during that time.


ACCOUNTABILITIES

Person	Responsibilities
Head of Environment	<ul style="list-style-type: none"> • Implementation and review of this procedure.
Chichester Operations Environmental Superintendent	<ul style="list-style-type: none"> • Assessment and approval of dewatering discharge application; and • Audits conditions of approval.
Manager Mine Water Resources	<ul style="list-style-type: none"> • Implementation of this procedure; • Provide application to the Environmental Superintendent on proposed discharge event; • Provide monitoring results to the Environmental Superintendent; and • Acknowledge discharge contingency approval prior to discharge commencing.
Manager Environmental Field Operations	<ul style="list-style-type: none"> • Report all discharge activities in the Annual Environmental Report.

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PROCEDURE

1	<p>Complete the <i>Dewatering Discharge Contingency Application</i> Form M-FR-EN-0001 (Attachment A) and submit to the Chichester Operations Environmental Superintendent at least 3 days prior to proposed discharge event.</p> <p style="color: red; text-align: center;"><i>Delays in processing the application may occur if the required information is not provided.</i></p>
2	<p>Following approval the dewatering personnel must:</p> <ul style="list-style-type: none"> • Provide to the Environmental Superintendent a copy of the Discharge Contingency Application Form signed by the Manager Mine Water Resources; • Email notification to the Environmental Superintendent upon commencement of discharge activity; • Provide monitoring results to the Environmental Superintendent every Monday and Thursday from the commencement of the discharge event; and • Email notification to the Environmental Superintendent upon cessation of discharge activity.
3	<p>The Manager Mine Water Resources must notify the Environmental Superintendent within 24 hours if any of the following occur:</p> <ul style="list-style-type: none"> • The daily discharge volume exceeds the prescribed limit stated in Table 1; • The Electrical Conductivity (EC) of the discharged water exceeds the prescribed limit of 15,000 $\mu\text{S}/\text{cm}$; • The turbidity of the discharged water exceeds the prescribed limit of 100 NTU; • A discharge point other than a nominated discharge point detailed in Attachment B is used; or • The discharge surface water flow will or has reached the Fortescue Marshes. <p><i>The Environmental Superintendent will liaise with the Manager Mine Water Resources on the course of action required following the notification of any of the above occurrences. This may include the redirection, suspension or restriction of the approved discharge event.</i></p>
4	<p>Monitoring is to be initiated as the requirements specified below.</p>

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MONITORING

Monitoring Points

Monitoring points are to be established at:

- The discharge point (DP);
- Intervals along the discharge drainage line no greater than 1000 metres apart; and
- The termination point of surface water flow or designated monitoring point at edge of the Fortescue Marshes.

Photographs

One photograph must be taken at each monitoring point on commencement, every 7 days and on cessation of the discharge event.

Electrical Conductivity (EC)

Electrical Conductivity (EC) readings must be measured at the discharge point and recorded at intervals specified as follows:

1. Within 30 minutes after the commencement of discharge;
2. Every 24 hours for the duration of the discharge (at the same time each day); and
3. Within 30 minutes prior to cessation of the discharge event.

Nephelometric turbidity units (NTU)

Nephelometric turbidity units (NTU) readings must be measured at the discharge point and at 1000 metres at intervals specified as follows:

1. Within 30 minutes after the commencement of discharge;
2. Every 24 hours for the duration of the discharge (at the same time each day); and
3. Within 30 minutes prior to cessation of the discharge event.


Water meter readings

Cumulative water meter readings must be taken and recorded as follows:

1. Prior to implementation of each discharge event at the designated discharge point;
2. Every 24 hours for the duration of the discharge (at the same time each day); and
3. Immediately following the cessation of each discharge event.

All monitoring data must be recorded and entered in the approved dewatering discharge register located in the Groundwater Database on a daily basis on completion of the monitoring specified above.

Monitoring data is to be exported every Monday and Thursday and located along with pictures in a folder specified for the approved discharge event and stored at:

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<F:\E.Corporate Environment\03.UnControlled Documents\Discharge Contingency Reports>

All pictures must be labelled with discharge event, date, time and monitoring point.

ATTACHMENTS

- A *Dewatering Discharge Contingency Application Form* M-FR-EN-0001
- B Chichester Operations Discharge Contingency – Discharge Location Map

DEFINITIONS

Contingency - an event (as an emergency) that may, but is not certain to, occur and is not of a regular or ongoing nature.

REFERENCES

- Chichester Operations Surface Water Management Plan* 100-RP-EN-0006
- Groundwater Discharge Management Plan* 100-PL-EN-0001
- Levees and Spreader Ditches Procedure* E-EN-PP-1139
- Groundwater Discharge Monitoring Procedure* 100-PR-EN-0010
- Cloudbreak Mine Groundwater Operating Strategies (as approved)

REVIEW

This procedure will be reviewed annually and amended as necessary to ensure compliance with legislative requirements and conditions.


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ATTACHMENTS



Dewatering Discharge Contingency

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ATTACHMENT A

Dewatering Discharge Contingency Application Form M-FR-EN-0001

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Dewatering Discharge Contingency Application

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**Dewatering Discharge Contingency Application**

Date of application:

Application No:
*(Environment Use Only)***Section A Applicant Details***Where possible the applicant should be the same as the contact person for the activity*

Name:

Department:

Contact Number:

Email:

Section B Contingency Assessment*Consider all possible options for water disposal and confirm that they are not available.*Can the water be diverted for re-use for mining purposes? Yes No

If no, specify reason:

Can the water be diverted to an alternative injection borefield? Yes No

If no, specify reason:

Can the water be diverted for discharge through in pit disposal? Yes No

If no, specify reason:

Can a reduction (or cessation) of dewatering rates occur? Yes No

If no, specify reason:

Can the water be held in a temporary storage facility? Yes No

If no, specify reason:

Section C Contingency Details

Applicable contingency situation

1. Injection pipeline(s) requires maintenance/repairs. 2. Injection bore(s) requires maintenance/repairs. 3. Injection infrastructure taken offline for addition of injection bores. 4. Pump failure at transfer dam. 5. Planning and construction delays.

**Dewatering Discharge Contingency Application**Description of work required (*please provide details*)

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Discharge activity schedule:

Proposed commencement Date:	Time:
Duration of discharge (days):	
Estimated rate of discharge (kL/day):	Estimated total volume (kL):

Expected discharge water quality:

EC ($\mu\text{S}/\text{cm}$):	Date of sample:
Turbidity (NTU):	Sample taken by:

Discharge source:

(e.g. disposal pit, production bore ID, transfer pond etc)


Discharge point(s):

DP01	<input type="checkbox"/>	DP02	<input type="checkbox"/>	DP03	<input type="checkbox"/>	DP04	<input type="checkbox"/>	DP05	<input type="checkbox"/>
DP06	<input type="checkbox"/>	DP07	<input type="checkbox"/>	DP08	<input type="checkbox"/>	DP09	<input type="checkbox"/>	DP10	<input type="checkbox"/>

HSDP01	<input type="checkbox"/>	HSDP02	<input type="checkbox"/>	HSDP03	<input type="checkbox"/>	HSDP04	<input type="checkbox"/>	HSDP05	<input type="checkbox"/>
HSDP06	<input type="checkbox"/>	HSDP07	<input type="checkbox"/>						

*(See Attachment B of the Dewatering Discharge Contingency Procedure M-PR-EN-0001)***Section D****Environment Use Only**

Date application received:	Assessed by:
This application has been:	
Approved:	<input type="checkbox"/>
Commencement date:	Cessation date:
<i>Approved discharge duration is inclusive of commencement and cessation days</i>	
Declined:	<input type="checkbox"/>
Reasons for Decline:	
Application incomplete <input type="checkbox"/>	Water quality above 15,000 $\mu\text{S}/\text{cm}$ <input type="checkbox"/>
Did not meet contingency situation criteria <input type="checkbox"/>	
Signature Environmental Superintendent:	

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Conditions of approval

1. Approval is granted for the situation as described in Section C.
2. Any variation to the approved activity or details as described may cause this approval to be revoked.
3. Variations to any aspect of this application must be provided to the Environmental Superintendent for re-assessment of this application prior to commencement of discharge.
4. Monitoring must be undertaken as described in the *Dewatering Discharge Contingency Procedure M-PR-EN-0001*.
5. Monitoring data must be recorded, entered and stored in the location specified in the *Dewatering Discharge Contingency Procedure M-PR-EN-0001* every Monday and Thursday following commencement of the discharge activity.
6. Approval granted for the discharge activity can be revoked by the Environmental Superintendent at any time.
7. Immediate notification to the Environmental Superintendent:
 - Exceedence or variation to the daily discharge volumes in excess of the prescribed daily limits;
 - Exceedence of the maximum allowable duration days;
 - Exceedence of the prescribed EC and/or Turbidity levels;
 - Variation to the nominated discharge point; or
 - Discharge surface water flows will or have reached the Fortescue Marshes.
8. Non-compliance with any of these conditions constitutes an environmental incident and must be reported through BMS within 24 hours.
9. The total volume of water that can be discharged as a result of one or more contingency situations within any 24 hour period must not exceed 20,000 kL regardless of the number of discharge events that have been approved to occur. The only exception to this rule is contingency situation No. 4, during this situation the total volume of water that can be discharged in 24 hours is 35,000 kL.

Section E to be completed by the Manager Mine Water Resources upon receipt of approval only.

Section E	Manager Mine Water Resources
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I have read and I understand the *Dewatering Discharge Contingency Procedure M-PR-EN-0001* and the above stated approval conditions.

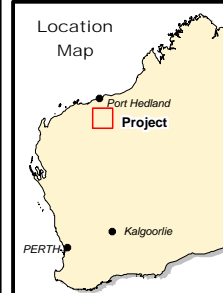
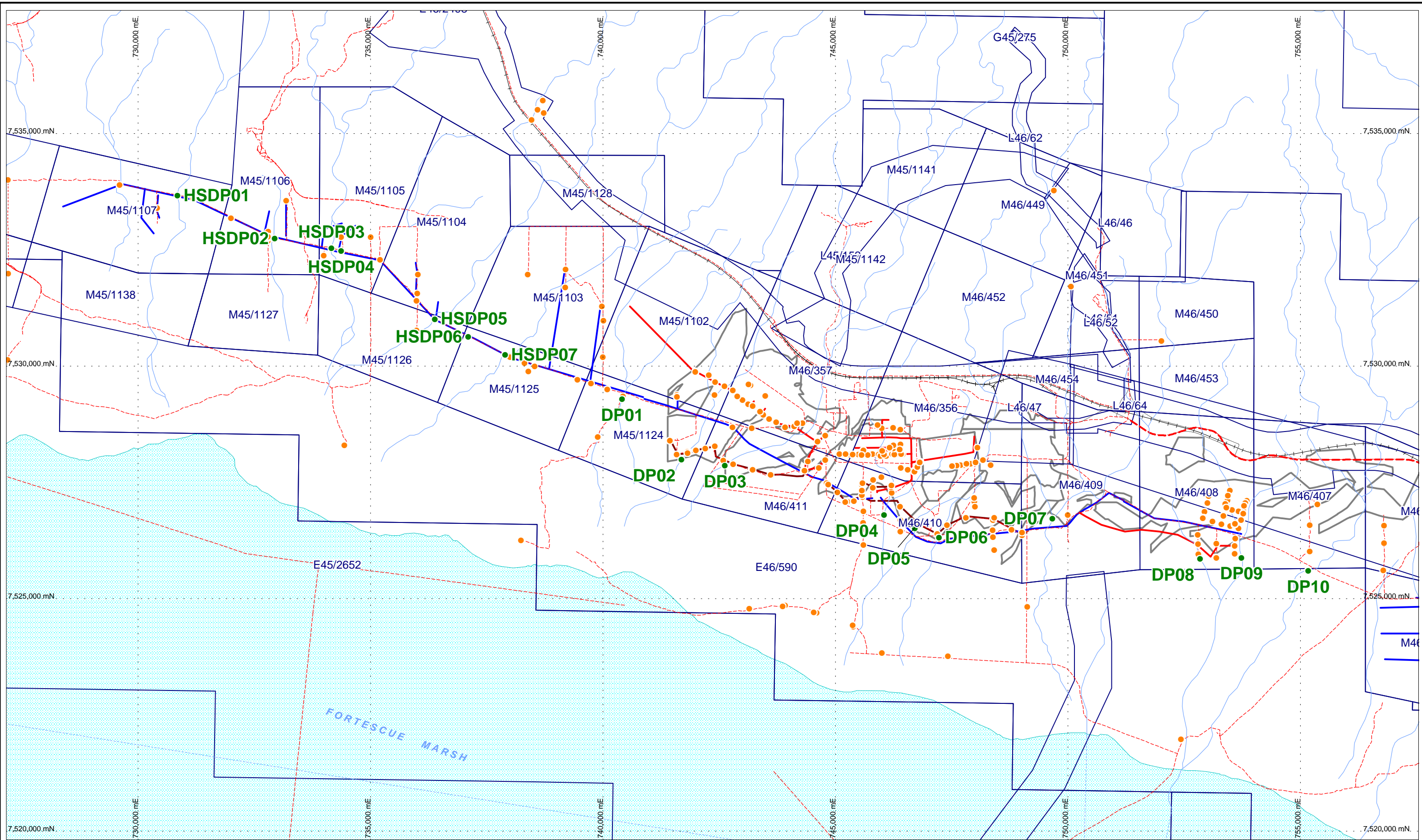
Signature:	Printed name:
	Date:

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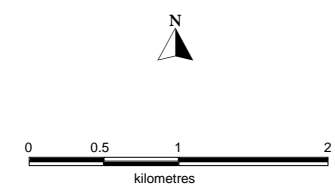
ATTACHMENT B

Chichester Operations Discharge Contingency - Discharge Location Map

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- Discharge Points
- Well Locations
- Dewatering pipe route
- Injection pipe route
- Hillside borefield pipe route
- FMG Tenements
- Fortescue Marsh
- Mining Pit Outline
- Waterways



Fortescue Metals Group Ltd

**Chichester Operations
Discharge Contingency
Discharge Points**

Author: A.Meyer	Date: 07/09/2009
Drawn By: FH	Revision: 1
Dwg No: CB_MP_EN_0033	Confidentiality: 1
Projection: MGA Zone 50 (GDA 94)	Scale: 1:20000