

Clause 6 (1)

From: Clause 6 (1)
Sent: Monday, 1 July 2019 9:08 PM
To: Spencer, Jarrod (DEM)
Cc: Clause 6 (1)
Subject: CONFIDENTIAL Incident Notification Email

Jarrold,

I would like to notify DEM of Out of scope incidents today. Out of scope a gas leak at our Toolachee pipeline pig receiver Out of scope occurred in our Cooper Basin operations.

A maintenance work crew was executing scheduled works on the Toolachee pig receiver isolation valve this morning. During this activity we believe that a hand tool fell and damaged a drain line causing an uncontrolled gas release to atmosphere. The work crew was safely evacuated. The gas release is continuing at this point.

Out of scope

Once the pipeline network is safely depressured, the release will be investigated to review the cause and any required repair work undertaken.



Clause 6 (1)

Santos Limited, 60 Flinders Street, Adelaide SA 5000

Clause 6 (1)

santos.com

Santos Ltd A.B.N. 80 007 550 923

Disclaimer: The information contained in this email is intended only for the use of the person(s) to whom it is addressed and may be confidential or contain privileged information. If you are not the intended recipient you are hereby notified that any perusal, use, distribution, copying or disclosure is strictly prohibited. If you have received this email in error please immediately advise us by return email and delete the email without making a copy. **Please consider the environment before printing this email**

Clause 6 (1)

From: Spencer, Jarrod (DEM)
Sent: Monday, 1 July 2019 8:26 PM
To: Goldstein, Barry (DEM)
Cc: Malavazos, Michael (DEM); Clause 6 (1) Alexander, Elinor (DEM); Sapa, Piotr (DEM)
Subject: RE: Strzelecki Incident

Hi Barry

I've spoken with Clause 6 (1) who provided a comprehensive overview. They will also provide a written overview later tonight.

C6(1) confirmed the following:

- The incident occurred at approximately 1pm during planned maintenance on the Toolachee pig receiver.
- A hammer was dropped from height and impacted and broke a 1 inch drain line on the pig receiver, resulting in un-controlled flow from the pipeline.
- Part of the planned maintenance was to replace the shut in valve which was no longer fully sealing, therefore not allowing them to shut in the line.
- They then decided to blow down gas at the Strzelecki Satellite flare to depressurise the pipeline, Clause 6 (1)
- Out of scope
- Out of scope
- They then had to stop depressurising through this flare and instead undertake depressurisation at the Toolachee satellite which was more effective due to the presence of a mid line valve
- The Strzelecki track was closed as soon as possible and remains closed tonight. Santos will maintain traffic control at the site and road blocks further afield. They have notified SAPOL and local landholders including Innamincka.
- Santos has undertaken dispersion modelling that indicates 10% LEL at 300m from the release site. The release site is under 100m from the road.
- They do not want to rush the depressurisation process or undertake any risky remediation processes.
- The pipeline pressure prior to release was C7(1)(C) and was C7(1)(C) a short time ago. Depressurisation at current rates will take approximately 24-36 hours
- Santos do not foresee any issues with gas nominations

We will speak further with the Production Manager tomorrow morning and will organise a site visit for Wednesday

Did you want me to develop something for the Minister

Cheers
 Jarrod

From: Goldstein, Barry (DEM)
Sent: Monday, 1 July 2019 7:22 PM
To: Clause 6 (1)
 Spencer, Jarrod (DEM) <Jarrod.Spencer2@sa.gov.au>
Cc: Clause 6 (1) Malavazos, Michael (DEM)
 <Michael.Malavazos@sa.gov.au>
Subject: Re: Strzelecki Incident

Thanks Jarrod
 Have alerted our Minister saying details will follow soonest
 Barry

Sent from my iPhone

On 1 Jul 2019, at 6:56 pm, Spencer, Jarrod (DEM) <Jarrod.Spencer2@sa.gov.au> wrote:

Hi Clause 6 (1)

I have attempted to make contact by phone.

We are starting to receive questions here regarding the incident on the Strzelecki gas line this afternoon and to ensure we have accurate information to respond with can you please provide a written overview of the incident ASAP tonight.

The information I have to date (following initial phone conversation with C6(1)) is that the pipeline was struck (falling object) which caused an uncontrolled gas release. As this was not able to be isolated, three compressors were shut down and gas was flared at Strzelecki Satellite.

Out of scope

The Strzelecki track was closed and there had been no injuries.

Out of scope

Can you please confirm the following:

- Time of incident
- Location
- Which pipeline failed
- The cause of the failure
- The current status at both sites (failure site and satellite)
- The estimated size of the gas release
- Estimated timing on remedial works to control the pipeline flow

Please feel free to call me on Clause 6 (1)

Regards

Jarrod Spencer
A/Director
Engineering Operations Branch

Energy Resources Division
Department for Energy and Mining

T +61 (8) 8429 2447
E jarrod.spencer2@sa.gov.au

GPO Box 320, Adelaide, South Australia 5001
Level 7, 11 Waymouth Street, Adelaide 5000

<Picture (Device Independent Bitmap) 1.jpg>

DISCLAIMER:

The information in this e-mail may be confidential and/or legally privileged. It is intended solely for the addressee. Access to this e-mail by anyone else is unauthorised. If you are not the intended recipient, any disclosure, copying, distribution or any action taken or omitted to be taken in reliance on it, is prohibited and may be unlawful. If you have received this email in error, please delete it from your

system and notify the sender immediately. DEM does not represent, warrant or guarantee that the integrity of this communication has been maintained or that the communication is free of errors, virus or interference.

From: Spencer, Jarrod (DEM)
Sent: Monday, 1 July 2019 4:02 PM
To: Clause 6 (1)
Subject: Strzelecki Incident

Hi Clause 6 (1)

Apologies I had to cut you short earlier I was being escorted into an Exec meeting

As discussed earlier if you could as soon as possible provide a written overview of the incident and include the normal incident report that would be appreciated.

The overview should include everything you explained to me earlier, along with the exact locations of the incidents.

Clause 6 (1) and I will give you a call tomorrow morning to discuss further. Please let me know a time that suits.

At this stage we also intend to investigate the incident further onsite and will make flight arrangements for Wednesday to Moomba.

Feel free to call me when your back in phone range on Clause 6 (1)

Regards

Jarrod Spencer
Senior Environmental Officer, Regulation and Assessment
Engineering Operations Branch

Energy Resources Division
Department for Energy and Mining

T +61 (8) 8429 2447
E jarrod.spencer2@sa.gov.au

GPO Box 320, Adelaide, South Australia 5001
Level 7, 11 Waymouth Street, Adelaide 5000

<< OLE Object: Picture (Device Independent Bitmap) >>

DISCLAIMER:

The information in this e-mail may be confidential and/or legally privileged. It is intended solely for the addressee. Access to this e-mail by anyone else is unauthorised. If you are not the intended recipient, any disclosure, copying, distribution or any action taken or omitted to be taken in reliance on it, is prohibited and may be unlawful. If you have received this email in error, please delete it from your system and notify the sender immediately. DEM does not represent, warrant or guarantee that the integrity of this communication has been maintained or that the communication is free of errors, virus or interference.

	August 2019	September 2019	October 2019
M	5 12 19 26	M 30 2 9 16 23	M 7 14 21 28
T	6 13 20 27	T 3 10 17 24	T 1 8 15 22 29
W	7 14 21 28	W 4 11 18 25	W 2 9 16 23 30
T	1 8 15 22 29	T 5 12 19 26	T 3 10 17 24 31
F	2 9 16 23 30	F 6 13 20 27	F 4 11 18 25
S	3 10 17 24 31	S 7 14 21 28	S 5 12 19 26
S	4 11 18 25	S 1 8 15 22 29	S 6 13 20 27

Date - Arrived 10.30 - left 2-4

183/182 Tuesday

8.00 am	Clause 6 (1)
	Santos Incident
8.30	- Request Serious Incident Report notification
9.00	Clause 6 (1) 10 am
9.30	- release toolachee pig receiver
10.00	- corner of Storz track and Storz access road
10.30	- isolation valve replacement.
11.00	Kidman / Storz bolache compressors shut down
11.30	Out of scope
Noon	
12.30	
1.00	- Platform on site - hiab
	- pipeline maintenance team
1.30	- workpac
	- activate for 30 min valve
2.00	
2.30	psid. depressant through Toolachees.
	24-456 from Dept.
3.00	Clause 7 (1) (c)
3.30	Out of scope
4.00	
4.30	
5.00	
6.00 pm	

Clause 6 (1)

From: Spencer, Jarrod (DEM)
Sent: Tuesday, 2 July 2019 11:16 AM
To: Clause 6 (1)
Subject: FW: Road Closures
Attachments: Roads.pdf

FYI

From: Clause 6 (1)
Sent: Tuesday, 2 July 2019 11:10 AM
To: Spencer, Jarrod (DEM) <Jarrod.Spencer2@sa.gov.au>
Subject: Road Closures

Jarrold,

Road closure details attached.

Clause 6 (1)

Santos

Santos Limited, 60 Flinders Street, Adelaide SA 5000
Clause 6 (1)

   santos.com

Santos Ltd A.B.N. 80 007 550 923

Disclaimer: The information contained in this email is intended only for the use of the person(s) to whom it is addressed and may be confidential or contain privileged information. If you are not the intended recipient you are hereby notified that any perusal, use, distribution, copying or disclosure is strictly prohibited. If you have received this email in error please immediately advise us by return email and delete the email without making a copy. **Please consider the environment before printing this email**





Dulligari to Moomba closed

Clause 6 (1)

From: Clause 6 (1)
Sent: Tuesday, 2 July 2019 12:32 PM
To: DEM:Engineering
Cc: Spencer, Jarrod (DEM)
Subject: Serious Incident Notification
Attachments: 190702 Strezelecki serious incident DEM notification (LD).docx



Clause 6 (1)

Santos Limited, 60 Flinders Street, Adelaide SA 5000

Clause 6 (1)




santos.com

Santos Ltd A.B.N. 80 007 550 923

Disclaimer: The information contained in this email is intended only for the use of the person(s) to whom it is addressed and may be confidential or contain privileged information. If you are not the intended recipient you are hereby notified that any perusal, use, distribution, copying or disclosure is strictly prohibited. If you have received this email in error please immediately advise us by return email and delete the email without making a copy. **Please consider the environment before printing this email**

Initial Notification Form



DEM Serious Incident Notification

IMS Number: N/A

Approval Number and Company Owner/Operator: PPO SEO, Santos Limited.

Clause 7 (1) (c)

Clause 7 (1) (c)

Contact Person Name and Phone Number: Clause 6 (1)

Location of Environmental Incident: Strzelecki "T" junction manifold on Della Road, approximately 1.6km west of Dillon Hwy, Strzelecki satellite facility

Clause 7 (1) (c)

Clause 7 (1) (c) (Strzelecki 'T' Junction facility)

Incident Date: 1/07/2019

Incident Time: Morning

Time and Date Santos Became Aware of Incident: 1/07/2019 / Morning

Incident Details: There are Out of scope that have occurred in Santos Cooper Basin Operations. A gas release at the Toolachee pipeline pig receiver at the Strzelecki T Junction Out of scope. The gas release at the Strzelecki 'T' Junction facility is continuing until the pipeline is depressurised. The pipeline pressure is now being reduced via flare at the Toolachee facility.

Clause 7 (1) (c)

Clause 7 (1) (c)

Clause 7 (1) (c)

Suspected Cause: It is being investigated, but it is suspected that accidental damage to a drain line at the Strzelecki T Junction facility caused the initial gas release.

Flora/Fauna/Stock Status: No stock evident. Grasses and shrubs in area.

Sampling Details: N/A

Landholder Details: Clause 6 (1) Contacted on: 1/07/2019 At: Approx 3:00pm

Actions Taken to Control Incident: The work crew at the Strzelecki T Junction facility were safely evacuated. Out of scope. Flaring at the Toolachee facility is currently occurring to depressurise the line and this is being monitored. As a precautionary measure roads into the area have been closed while the operations to depressure the pipeline are under way.

Actions taken/proposed to clean-up/rehabilitate any affected area: Still to be assessed.

Initial Notification Form

DEM Serious Incident Notification

Santos

Additional Investigations: An investigation will be commenced.

Reported By: Clause 6 (1)

Date: 2/07/2019

To be emailed to DEM.Engineering@sa.gov.au

McIntyre, Branka (DEM)

From: Tucker, Trevor (DEM)
Sent: Tuesday, 2 July 2019 11:27 AM
To: Clause 6 (1) [REDACTED] Webb, Mieka (DEM)
Cc: Malavazos, Michael (DEM)
Subject: FW: Moomba [DLM=For-Official-Use-Only]

Hi W & M

Were you aware of this? We heard a very basic message around 3:30/4pm yesterday and chased Santos but news was scant. Being on a gathering line it wouldn't impact supply, but it does raise reporting and procedural questions from my point of view.

Cheers

Trevor

From: Massey, Brian (DEM)
Sent: Tuesday, 2 July 2019 11:03 AM
To: Tucker, Trevor (DEM) ; Szacinski, Andrew (DEM)
Subject: FW: Moomba [DLM=For-Official-Use-Only]

For Official Use Only

Does this raise any questions about incident notification (or lack thereof) ?

From: Dippy, Russell (SAPOL)
Sent: Tuesday, 2 July 2019 11:00 AM
To: Massey, Brian (DEM) <Brian.Massey@sa.gov.au>
Subject: FW: Moomba

Hi Brian,

For your info only pls

This is what we have. Not sure if you have heard anything further. I definitely think that this is worthy of a debrief.

Thanks

Russell

Senior Sergeant First Class Russell Dippy CS1J LEM CEM® FACEM
Acting Officer in Charge, Emergency and Major Event Section (42)
SA Police Headquarters
100 Angas St

ADELAIDE SA 5000
T 08 732 24251 F 08 732 24287 M **Clause 6 (1)**
E russell.dippy@police.sa.gov.au
W www.police.sa.gov.au
SOUTH AUSTRALIA POLICE
KEEPING SA SAFE

The information contained in this message and any attachment is confidential and may also be the subject of legal, professional privilege or public interest immunity. If you are not the intended recipient, any use, disclosure or copying of this document and or its attachments is unauthorised. Please advise us by reply and then delete it from your system. Any views or opinions presented are solely those of the author and do not necessarily represent those of SAPOL.

Here are a few dot points –

At about 1300 hours on 1/7/19 a maintenance crew working for SANTOS at Moomba was conducting scheduled works on a gas pipeline (critical Infrastructure) approximately 50km south of Innaminka on the Strezleki Track.

During this maintenance a member of the crew damaged a valve of the pipeline resulting in a uncontrollable gas leak.

The crew were unable to gain control of the leak so evacuated immediately and reported the leak to Moomba management. A 300m exclusion zone was set surrounding all areas of pipeline involved.

Control measures were then instigated and depressurization protocols were initiated. This involved specific gas flares at specific sites along the pipeline. **Out of scope**

Out of scope

Out of scope

The location of the gas leak and areas of the exclusion zone involved a large area of the Strezleki Track – as a result DPTI advised and road closures were put in place, this included SANTOS staff physically manning road closure sites, DPTI signs updated and members of the public at Innaminka, Marree, Leigh Creek and Lyndhurst advised. Media consulted re media release of road closures also.

Incident controller at Moomba Greg HARRISON has advised that they have commenced depressurising and it is likely that the area will be safe to re-open within 24 to 48 hours. He will provide an update at 1000hrs 2/7/19.

Issues experienced in relation to this incident have occurred due to the lack of information sharing between SANTOS incident management and SAPOL. The incident was reported to SAPOL at approximately 1400hours 1/7/19 – despite numerous attempts by SAPOL forward command unable to gain information from SANTOS as to sit rep. At approximately 1730 hours SAPOL provided an update with full information as to all of the above.

The failure to share information resulted in A/C involvement to ensure SANTOS provided update. OF note the industry regulator were not made aware until A/C involvement. As at 1830 hours SANTOS has still not advised safework SA – however of note no injury to staff – gas exposure only.

Recommend that debrief be conducted with SANTOS and information sharing model be included in the current Emergency Response Plan.

Regards,

Clause 6 (1)

From: Spencer, Jarrod (DEM)
Sent: Wednesday, 3 July 2019 1:58 PM
To: Goldstein, Barry (DEM)
Cc: Malavazos, Michael (DEM); Clause 6 (1) Webb, Mieka (DEM)
Subject: FW: Cooper roads reopened

Hi Barry,

Please see confirmation from Clause 6 (1) below that they notified SAPOL that it is safe to reopen the public road. I have confirmed on the DPTI website that this road has been reopened.

We have confirmed with Santos via phone. They outlined that the pipeline has been depressurised to C7(1)(c) down from original C7(1)(c) prior to the incident. The depressurisation process has slowed, however they expect to fully depressurise and be able to access the pipeline by tomorrow afternoon.

This coincides well with our visit; Clause 6 (1) Mieka will be onsite at approximately 4.30pm tomorrow.

I will update Hot Topics accordingly

Cheers
 Jarrod

-----Original Message-----

From: Clause 6 (1)
Sent: Wednesday, 3 July 2019 1:26 PM
To: Spencer, Jarrod (DEM) <Jarrod.Spencer2@sa.gov.au>
Subject: Cooper roads reopened

Jarrod, a heads up that we notified SAPOL ~11:30 (who will notify DPTI) that roads are safe to reopen.

Regards,
 Clause 6 (1)

Sent from my iPhone

Disclaimer: The information contained in this email is intended only for the use of the person(s) to whom it is addressed and may be confidential or contain privileged information.

If you are not the intended recipient you are hereby notified that any perusal, use, distribution, copying or disclosure is strictly prohibited.

If you have received this email in error please immediately advise us by return email and delete the email without making a copy.

Please consider the environment before printing this email

Clause 6 (1)

From: Clause 6 (1)
Sent: Wednesday, 3 July 2019 11:45 AM
To: Clause 6 (1)
Cc: Spencer, Jarrod (DEM); Webb, Mieka (DEM)
Subject: RE: CONFIDENTIAL Incident Notification Email

Clause 6 (1)

Just to confirm that it will be Mieka Webb and myself traveling to site tomorrow.
 We have accommodation booked at Dullingari – will the current road restriction still be in place tomorrow afternoon? If so, is there a recommended route to Dullingari that avoids the Strz Tee?

We arrive at Moomba at 3.30pm and will have to refresh our Santos ID and pick up our vehicle, so unlikely to reach Dullingari before late afternoon.

Would be good to have a meeting with yourself to get an updated briefing on the incidents and to plan movements for Friday.

I'm available via Clause 6 (1) and on this email.

Kind Regards,

Clause 6 (1)

Energy Resources Division
 Department for Energy and Mining

Clause 6 (1)

W:

<http://www.energymining.sa.gov.au/petroleum>

Level 7, 11 Waymouth Street, ADELAIDE SA 5000
 GPO Box 320, ADELAIDE SA 5001
 DX 541



Government of South Australia
 Department for Energy and Mining

Out of scope

From: Spencer, Jarrod (DEM) <Jarrod.Spencer2@sa.gov.au>
Sent: Wednesday, 3 July 2019 10:22 AM
To: Clause 6 (1)
Subject: Re: CONFIDENTIAL Incident Notification Email

Thanks Clause 6 (1)

Sent from my iPhone

On 2 Jul 2019, at 6:57 pm, Clause 6 (1) wrote:

Hi Jarrod,

Noted, thanks. Will aim to call tomorrow with update on depressuring.

Clause 6 (1)

From: Spencer, Jarrod (DEM) [mailto:Jarrod.Spencer2@sa.gov.au]

Sent: Tuesday, 2 July 2019 6:01 PM

To: Clause 6 (1)

Subject: [EXT]: Re: CONFIDENTIAL Incident Notification Email

Hi Clause 6 (1)

We have pushed our flight out until Thursday at this stage. Please keep us posted on depressurization process.

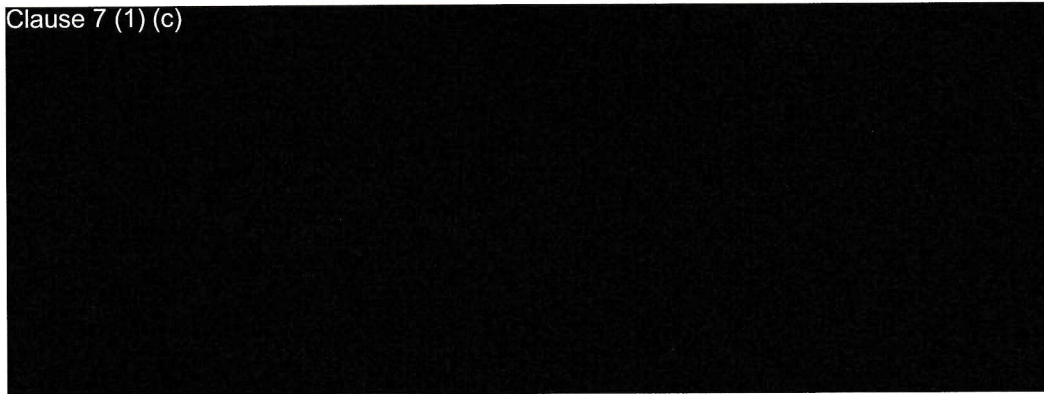
Regards
Jarrod

Sent from my iPhone

On 2 Jul 2019, at 12:48 pm, Clause 6 (1) wrote:

Jarrod,

Clause 7 (1) (c)



<image001.jpg>

Clause 6 (1)



[Santos Limited, 60 Flinders Street, Adelaide SA 5000](#)

Clause 6 (1)

<image002.jpg> <image003.jpg> <image008.jpg> santos.com

From: Clause 6 (1)

Sent: Tuesday, 2 July 2019 9:59 AM

To: Clause 6 (1)

Cc: Barry Goldstein <BARRY.GOLDSTEIN@SA.GOV.AU> Clause 6 (1)

Clause 6 (1) Jarrod Spencer <jarrod.spencer2@sa.gov.au>

Subject: [EXT]: RE: CONFIDENTIAL Incident Notification Email

Clause 6 (1)

To assist our understanding, it would be greatly beneficial if your team could send through the relevant P&ID drawings.

Kind Regards,

Clause 6 (1)

Energy Resources Division
Department for Energy and Mining

Clause 6 (1)

<http://www.energymining.sa.gov.au/petroleum>

W:

Level 7, 11 Waymouth Street, ADELAIDE SA 5000
GPO Box 320, ADELAIDE SA 5001
DX 541
<image009.png>

Out of scope

From: Spencer, Jarrod (DEM) <Jarrod.Spencer2@sa.gov.au>

Sent: Tuesday, 2 July 2019 9:57 AM

To: Clause 6 (1)

Cc: Goldstein, Barry (DEM) <Barry.Goldstein@sa.gov.au>; Clause 6 (1)

Subject: RE: CONFIDENTIAL Incident Notification Email

Hi Clause 6 (1)

Im having trouble contacting Clause 6 (1)

Are you, or someone else available for a discussion this morning with our Clause 6 (1) to further understand the incident before we brief our Minister in detail.

Thanks in advance

Jarrod Spencer
A/Director
Engineering Operations Branch

Energy Resources Division
Department for Energy and Mining

T +61 (8) 8429 2447 | Clause 6 (1) | E jarrod.spencer2@sa.gov.au

From: Spencer, Jarrod (DEM)

Sent: Tuesday, 2 July 2019 8:16 AM

To: Clause 6 (1)

Subject: Re: CONFIDENTIAL Incident Notification Email

Thanks Clause 6 (1)

When would be a good time this morning for a phone hook up to discuss further?

Regards
Jarrod

Sent from my iPhone

On 1 Jul 2019, at 9:07 pm, **Clause 6 (1)** wrote:

Jarrod,

I would like to notify DEM of **Out of scope** incidents today **Out of scope** a gas leak at our Toolachee pipeline pig receiver **Out of scope** occurred in our Cooper Basin operations.

A maintenance work crew was executing scheduled works on the Toolachee pig receiver isolation valve this morning. During this activity we believe that a hand tool fell and damaged a drain line causing an uncontrolled gas release to atmosphere. The work crew was safely evacuated. The gas release is continuing at this point.

Out of scope

Once the pipeline network is safely depressured, the release will be investigated to review the cause and any required repair work undertaken.

<image010.jpg>

Clause 6 (1)

[Santos Limited, 60 Flinders Street, Adelaide SA 5000](#)

Clause 6 (1)

<image011.jpg> <image003.jpg> <image012.jpg> [santos.com](#)

Santos Ltd A.B.N. 80 007 550 923

Disclaimer: The information contained in this email is intended only for the use of the person(s) to whom it is addressed and may be confidential or contain privileged information. If you are not the intended recipient you are hereby notified that any perusal, use, distribution, copying or disclosure is strictly prohibited. If you have received this email in error please immediately advise us by return email and delete the email without making a copy. **Please consider the environment before printing this email**

<PDF File.pdf>

<1280-010-PID-0006_ENG_DWGN-225833-P[1].tiff>

Clause 6 (1)

From: Clause 6 (1)
Sent: Monday, 8 July 2019 3:53 PM
To: DEM:Engineering
Cc: Webb, Mieka (DEM)
Subject: P&ID's in connection with Strzelecki Tee [Out of scope], July 2019
Attachments: PDF File.pdf; 1280-010-PID-0006_ENG_DWGN-225833-P[1].tiff

Kind Regards,

Clause 6 (1)

Energy Resources Division
Department of the Premier and Cabinet

Clause 6 (1)

W: www.dpc.sa.gov.au

Level 6, 101 Grenfell Street, ADELAIDE SA 5000
GPO Box 320, ADELAIDE SA 5001
DX 541

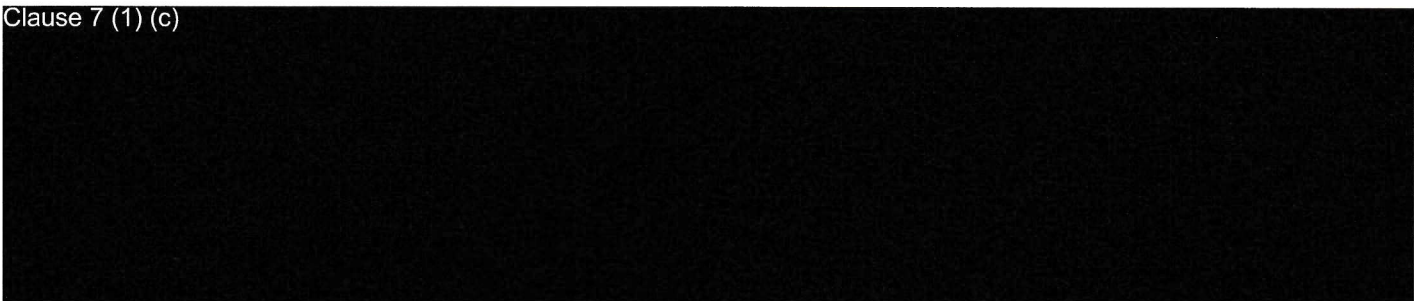


Information contained in this e-mail message may be confidential and may also be the subject of legal professional privilege or public interest immunity. If you are not the intended recipient, any use, disclosure or copying of this document is unauthorised.

From: Clause 6 (1)
Sent: Tuesday, 2 July 2019 12:48 PM
To: Spencer, Jarrod (DEM) <Jarrod.Spencer2@sa.gov.au>
Cc: Clause 6 (1)
Subject: RE: CONFIDENTIAL Incident Notification Email

Jarrold,

Clause 7 (1) (c)



Clause 6 (1)

[Santos Limited, 60 Flinders Street, Adelaide SA 5000](http://www.santos.com)

Clause 6 (1)

[santos.com](http://www.santos.com)

From: Clause 6 (1)
Sent: Tuesday, 2 July 2019 9:59 AM
To: Clause 6 (1)
Cc: Barry Goldstein <BARRY.GOLDSTEIN@SA.GOV.AU>; Clause 6 (1) Jarrod Spencer <jarrod.spencer2@sa.gov.au>
Subject: [EXT]: RE: CONFIDENTIAL Incident Notification Email

Clause 6 (1)

To assist our understanding, it would be greatly beneficial if your team could send through the relevant P&ID drawings.

Kind Regards,

Clause 6 (1)

Energy Resources Division
Department for Energy and Mining

Clause 6 (1)

W:

<http://www.energymining.sa.gov.au/petroleum>

Level 7, 11 Waymouth Street, ADELAIDE SA 5000
GPO Box 320, ADELAIDE SA 5001
DX 541



Government of South Australia
Department for Energy and Mining

Out of scope

From: Spencer, Jarrod (DEM) <Jarrod.Spencer2@sa.gov.au>
Sent: Tuesday, 2 July 2019 9:57 AM
To: Clause 6 (1)
Cc: Goldstein, Barry (DEM) <Barry.Goldstein@sa.gov.au>; Clause 6 (1)
Subject: RE: CONFIDENTIAL Incident Notification Email

Hi Clause 6 (1)

Im having trouble contacting Clause 6 (1)

Are you, or someone else available for a discussion this morning with our Clause 6 (1) to further understand the incident before we brief our Minister in detail.

Thanks in advance

Jarrod Spencer
A/Director

Engineering Operations Branch

Energy Resources Division
Department for Energy and Mining

T +61 (8) 8429 2447 | **Clause 6 (1)** | E jarrod.spencer2@sa.gov.au

From: Spencer, Jarrod (DEM)
Sent: Tuesday, 2 July 2019 8:16 AM
To: **Clause 6 (1)**
Subject: Re: CONFIDENTIAL Incident Notification Email

Thanks **Clause 6 (1)**

When would be a good time this morning for a phone hook up to discuss further?

Regards
Jarrod

Sent from my iPhone

On 1 Jul 2019, at 9:07 pm, **Clause 6 (1)** wrote:

Jarrod,

I would like to notify DEM of **Out of scope** incidents today. **Out of scope** a gas leak at our Toolachee pipeline pig receiver **Out of scope** occurred in our Cooper Basin operations.

A maintenance work crew was executing scheduled works on the Toolachee pig receiver isolation valve this morning. During this activity we believe that a hand tool fell and damaged a drain line causing an uncontrolled gas release to atmosphere. The work crew was safely evacuated. The gas release is continuing at this point.

Out of scope

Once the pipeline network is safely depressured, the release will be investigated to review the cause and any required repair work undertaken.

Santos

Clause 6 (1)

[Santos Limited, 60 Flinders Street, Adelaide SA 5000](#)
Clause 6 (1)

 [<image003.jpg>](#)  [santos.com](https://www.santos.com)

Clause 6 (1)

From: Clause 6 (1)
Sent: Tuesday, 9 July 2019 7:15 AM
To: Clause 6 (1)
Cc: Webb, Mieka (DEM)
Subject: CONFIDENTIAL Dullingari Visit
Attachments: 1150-010-PID-0009.pdf

Hi Clause 6 (1)

Thought I'd follow up on a couple of items you raised on your visit.

You mentioned being unable to locate Strz MLV on P&ID you saw. Please refer attached P&ID grid G8.

Also I followed up on why so many valves tagged as "passing valve" at the Strz T. It was a case of interpretation of the labelling which I likewise found confusing – since addressed. They were closed to support maintenance works on the 30" pig receiver valve i.e. they were closed for the job involving fixing a "passing valve", they were not passing themselves. That is with the exception of first one coming off Della trunkline which was passing, hence open vent to monitor.

Hope that helps and just given me a call if you'd like to discuss anything further. Regards.

Clause 6 (1)

From: Clause 6 (1)
Sent: Wednesday, 3 July 2019 11:45 AM
To: Clause 6 (1)
Cc: Jarrod Spencer <jarrod.spencer2@sa.gov.au>; Webb, Mieka (DEM) <Mieka.Webb@sa.gov.au>
Subject: [EXT]: RE: CONFIDENTIAL Incident Notification Email

Clause 6 (1)

Just to confirm that it will be Mieka Webb and myself traveling to site tomorrow.

We have accommodation booked at Dullingari – will the current road restriction still be in place tomorrow afternoon? If so, is there a recommended route to Dullingari that avoids the Strz Tee?

We arrive at Moomba at 3.30pm and will have to refresh our Santos ID and pick up our vehicle, so unlikely to reach Dullingari before late afternoon.

Would be good to have a meeting with yourself to get an updated briefing on the incidents and to plan movements for Friday.

I'm available via Clause 6 (1) and on this email.

Kind Regards,

Clause 6 (1)

Energy Resources Division
 Department for Energy and Mining

Clause 6 (1)

<http://www.energymining.sa.gov.au/petroleum>

W:

Level 7, 11 Waymouth Street, ADELAIDE SA 5000
 GPO Box 320, ADELAIDE SA 5001



Out of scope

From: Spencer, Jarrod (DEM) <Jarrod.Spencer2@sa.gov.au>

Sent: Wednesday, 3 July 2019 10:22 AM

To: Clause 6 (1)

Subject: Re: CONFIDENTIAL Incident Notification Email

Thanks Clause 6 (1)

Sent from my iPhone

On 2 Jul 2019, at 6:57 pm, Clause 6 (1) wrote:

Hi Jarrod,

Noted, thanks. Will aim to call tomorrow with update on depressuring.

Clause 6 (1)

From: Spencer, Jarrod (DEM) [<mailto:Jarrod.Spencer2@sa.gov.au>]

Sent: Tuesday, 2 July 2019 6:01 PM

To: Clause 6 (1)

Subject: [EXT]: Re: CONFIDENTIAL Incident Notification Email

Hi Clause 6 (1)

We have pushed our flight out until Thursday at this stage. Please keep us posted on depressurization process.

Regards
Jarrod

Sent from my iPhone

On 2 Jul 2019, at 12:48 pm, Clause 6 (1) wrote:

Jarrod,

Clause 7 (1) (c)

<image001.jpg>

Clause 6 (1)

Santos Limited, 60 Flinders Street, Adelaide SA 5000

Clause 6 (1)

<image002.jpg> <image003.jpg> <image008.jpg> santos.com

From: Clause 6 (1)
Sent: Tuesday, 2 July 2019 9:59 AM
To: Clause 6 (1)
Cc: Barry Goldstein <BARRY.GOLDSTEIN@SA.GOV.AU>; Clause 6 (1)
Jarrod Spencer <jarrod.spencer2@sa.gov.au>
Subject: [EXT]: RE: CONFIDENTIAL Incident Notification Email

Clause 6 (1)

To assist our understanding, it would be greatly beneficial if your team could send through the relevant P&ID drawings.

Kind Regards,

Clause 6 (1)

Energy Resources Division
Department for Energy and Mining

Clause 6 (1)

<http://www.energymining.sa.gov.au/petroleum>

W:

Level 7, 11 Waymouth Street, ADELAIDE SA 5000
GPO Box 320, ADELAIDE SA 5001
DX 541
<image009.png>

Out of scope

From: Spencer, Jarrod (DEM) <Jarrod.Spencer2@sa.gov.au>
Sent: Tuesday, 2 July 2019 9:57 AM
To: Clause 6 (1)
Cc: Goldstein, Barry (DEM) <Barry.Goldstein@sa.gov.au>; Clause 6 (1)
Clause 6 (1)
Subject: RE: CONFIDENTIAL Incident Notification Email

Hi Clause 6 (1)

Im having trouble contacting Clause 6 (1)

Are you, or someone else available for a discussion this morning with our [redacted]
Clause 6 (1) to further understand the incident
before we brief our Minister in detail.

Thanks in advance

Jarrod Spencer
A/Director
Engineering Operations Branch

Energy Resources Division
Department for Energy and Mining

T +61 (8) 8429 2447 | Clause 6 (1) | E jarrod.spencer2@sa.gov.au

From: Spencer, Jarrod (DEM)
Sent: Tuesday, 2 July 2019 8:16 AM
To: Clause 6 (1)
[redacted]
Subject: Re: CONFIDENTIAL Incident Notification Email

Thanks Clause 6 (1)

When would be a good time this morning for a phone hook up to discuss further?

Regards
Jarrod

Sent from my iPhone

On 1 Jul 2019, at 9:07 pm, Clause 6 (1) wrote:

Jarrod,

I would like to notify DEM of Out of scope incidents today. Out of scope a gas leak at our Toolachee pipeline pig receiver Out of scope [redacted] occurred in our Cooper Basin operations.

A maintenance work crew was executing scheduled works on the Toolachee pig receiver isolation valve this morning. During this activity we believe that a hand tool fell and damaged a drain line causing an uncontrolled gas release to atmosphere. The work crew was safely evacuated. The gas release is continuing at this point.

Out of scope [redacted]

Once the pipeline network is safely depressured, the release will be investigated to review the cause and any required repair work undertaken.

Clause 6 (1)

From: Malavazos, Michael (DEM)
Sent: Tuesday, 9 July 2019 8:16 AM
To: Clause 6 (1)
 Webb, Mieka (DEM)
Subject: Re: CONFIDENTIAL Dullingari Visit

Good to hear they weren't all leaking that was a worry

Sent from my iPhone

On 9 Jul 2019, at 7:30 am, Clause 6 (1) wrote:

Clause 6 (1)

Thanks for the clarifications.

I revisited the P&ID myself yesterday and had previously, mistakenly, thought the valve was located at Toolachee.

Indeed, the 'leaking valve' tags are confusing and I did wonder how you would ever achieve complete depressurisation.

Can you confirm current status of line pressure, recovery work and excavations/ disassembly etc. associated with investigation?

I'll need to put an update forward tomorrow that the Minister will sight.

Thanks again for your assistance whilst we were on site.

Kind Regards

Clause 6 (1)

Sent from my iPhone

On 9 Jul 2019, at 07:15, Clause 6 (1) wrote:

Hi Clause 6 (1)

Thought I'd follow up on a couple of items you raised on your visit.

You mentioned being unable to locate Strz MLV on P&ID you saw. Please refer attached P&ID grid G8.

Also I followed up on why so many valves tagged as "passing valve" at the Strz T. It was a case of interpretation of the labelling which I likewise found confusing – since addressed. They were closed to support maintenance works on the 30" pig receiver valve i.e. they were closed for the job involving fixing a "passing valve", they were not passing themselves. That is with the exception of first one coming off Della trunkline which was passing, hence open vent to monitor.

Hope that helps and just given me a call if you'd like to discuss anything further.
 Regards.

Clause 6 (1)

From: Clause 6 (1)
Sent: Wednesday, 3 July 2019 11:45 AM
To: Clause 6 (1)
Cc: Jarrod Spencer <jarrod.spencer2@sa.gov.au>; Webb, Mieka (DEM) <Mieka.Webb@sa.gov.au>
Subject: [EXT]: RE: CONFIDENTIAL Incident Notification Email

Clause 6 (1)

Just to confirm that it will be Mieka Webb and myself traveling to site tomorrow. We have accommodation booked at Dullingari – will the current road restriction still be in place tomorrow afternoon? If so, is there a recommended route to Dullingari that avoids the Strz Tee?

We arrive at Moomba at 3.30pm and will have to refresh our Santos ID and pick up our vehicle, so unlikely to reach Dullingari before late afternoon. Would be good to have a meeting with yourself to get an updated briefing on the incidents and to plan movements for Friday.

I'm available via Clause 6 (1) and on this email.

Kind Regards,

Clause 6 (1)

Energy Resources Division
Department for Energy and Mining

Clause 6 (1)

<http://www.energymining.sa.gov.au/petroleum>

W:

Level 7, 11 Waymouth Street, ADELAIDE SA 5000
GPO Box 320, ADELAIDE SA 5001
DX 541
<image001.png>

Out of scope

From: Spencer, Jarrod (DEM) <Jarrod.Spencer2@sa.gov.au>
Sent: Wednesday, 3 July 2019 10:22 AM
To: Clause 6 (1)
Subject: Re: CONFIDENTIAL Incident Notification Email

Thanks Clause 6 (1)

Sent from my iPhone

On 2 Jul 2019, at 6:57 pm, Clause 6 (1) wrote:

Hi Jarrod,

Noted, thanks. Will aim to call tomorrow with update on depressuring.

Clause 6 (1)

From: Spencer, Jarrod (DEM) [mailto:Jarrod.Spencer2@sa.gov.au]
Sent: Tuesday, 2 July 2019 6:01 PM
To: Clause 6 (1)
Subject: [EXT]: Re: CONFIDENTIAL Incident Notification Email

Hi Clause 6 (1)

We have pushed our flight out until Thursday at this stage.
Please keep us posted on depressurization process.

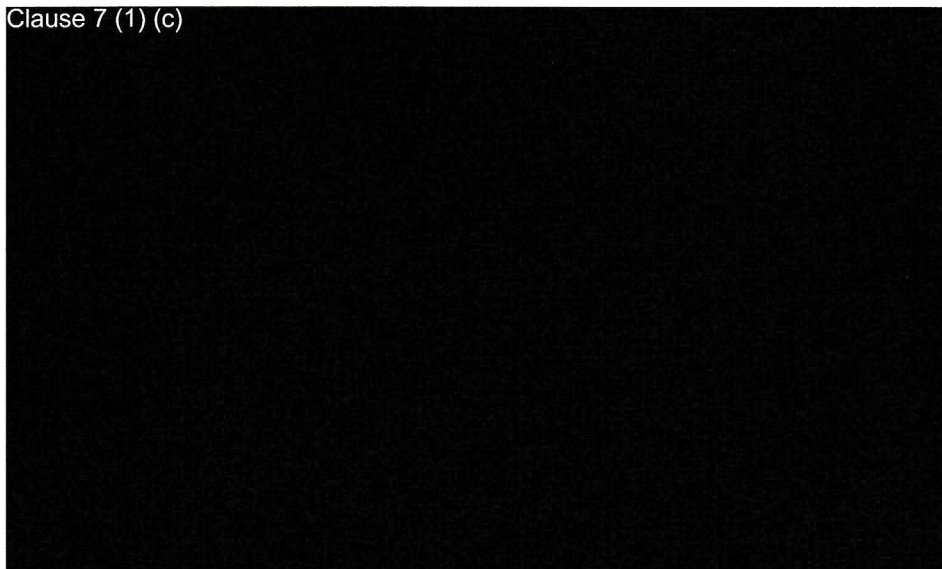
Regards
Jarrod

Sent from my iPhone

On 2 Jul 2019, at 12:48 pm, Clause 6 (1)
wrote:

Jarrod,

Clause 7 (1) (c)



<image001.jpg>

Clause 6 (1)

[Santos Limited, 60 Flinders Street, Adelaide SA 5000](#)

Clause 6 (1)

<image002.jpg> <image003.jpg> <image008.jpg> santos.com

From: Clause 6 (1)

Sent: Tuesday, 2 July 2019 9:59 AM

To: Clause 6 (1)
[Redacted]
Cc: Barry Goldstein
<BARRY.GOLDSTEIN@SA.GOV.AU>; [Redacted]
Clause 6 (1) Jarrod Spencer
<jarrod.spencer2@sa.gov.au>
Subject: [EXT]: RE: CONFIDENTIAL Incident Notification Email

Clause 6 (1)

To assist our understanding, it would be greatly beneficial if your team could send through the relevant P&ID drawings.

Kind Regards,

Clause 6 (1)
[Redacted]
Energy Resources Division
Department for Energy and Mining

Clause 6 (1)
[Redacted] W:
<http://www.energymining.sa.gov.au/petroleum>

Level 7, 11 Waymouth
Street, ADELAIDE SA
5000
GPO Box 320, ADELAIDE
SA 5001
DX 541
<image009.png>

Out of scope
[Redacted]

From: Spencer, Jarrod (DEM)
<Jarrod.Spencer2@sa.gov.au>
Sent: Tuesday, 2 July 2019 9:57 AM
To: Clause 6 (1)
[Redacted]
Cc: Goldstein, Barry (DEM)
<Barry.Goldstein@sa.gov.au>; Clause 6 (1)
[Redacted]
Subject: RE: CONFIDENTIAL Incident Notification Email

Hi Clause 6 (1)

Im having trouble contacting Clause 6 (1)

Are you, or someone else available for a discussion this morning with our Clause 6 (1)

Clause 6 (1) to further understand the incident before we brief our Minister in detail.

Thanks in advance

Jarrold Spencer
A/Director
Engineering Operations Branch

Energy Resources Division
Department for Energy and Mining

T +61 (8) 8429 2447 | Clause 6 (1) | E
jarrod.spencer2@sa.gov.au

From: Spencer, Jarrod (DEM)
Sent: Tuesday, 2 July 2019 8:16 AM
To: Clause 6 (1)
Subject: Re: CONFIDENTIAL Incident Notification Email

Thanks Clause 6 (1)

When would be a good time this morning for a phone hook up to discuss further?

Regards
Jarrod

Sent from my iPhone

On 1 Jul 2019, at 9:07 Clause 6 (1) wrote:

Jarrold,

I would like to notify DEM of Out of scope incidents today Out of scope a gas leak at our Toolachee pipeline pig receiver Out of scope

occurred in our Cooper Basin operations.

A maintenance work crew was executing scheduled works on the Toolachee pig receiver isolation valve this morning. During this activity we believe that a hand tool fell and damaged a drain line causing an uncontrolled gas release to atmosphere. The work crew was safely evacuated. The gas release is continuing at this point.

Out of scope

Once the pipeline network is safely depressured, the release will be investigated to review the cause and any required repair work undertaken.

<image010.jpg>

Clause 6 (1)

[Santos Limited, 60 Flinders Street, Adelaide SA 5000](#)

Clause 6 (1)

<image011.jpg> <image003.jpg> <image012.jpg> santos.com

Santos Ltd A.B.N. 80 007 550 923
Disclaimer: The information contained in this email is intended only for the use of the person(s) to whom it is addressed and may be confidential or contain privileged information. If you are not the intended recipient you are hereby notified that any perusal, use, distribution, copying or disclosure is strictly prohibited. If you have received this email in error please immediately advise us by return email and delete the email without making a copy. **Please consider the environment before printing this email**

<PDF File.pdf>

<1280-010-PID-0006_ENG_DWGN-225833-P[1].tiff>

<1150-010-PID-0009.pdf>

Clause 6 (1)

From: Clause 6 (1)
Sent: Thursday, 11 July 2019 1:30 PM
To: Malavazos, Michael (DEM)
Cc: Goldstein, Barry (DEM); Webb, Mieka (DEM); Spencer, Jarrod (DEM); DEM:Engineering
Subject: Strz Incidents - update from Santos 11/07/2019

Mike,

I just had a call from C6(1) at Santos (who we met on site last week) with an update and answers to some questions I left with him;

Strzelecki Tee

- Toolachee to Strzelecki Tee pipeline is now back in use
- Replacement 30" valve has been installed (it was already at site)
- Removed valve is being quarantined for investigation C6(1) thought this would initially be at Moomba)
- Santos considering the need to connect the (existing) drain line to the valve drain port (I think there is a short stub from body of valve).

Out of scope

Kind Regards,

Clause 6 (1)

Energy Resources Division
 Department for Energy and Mining

Clause 6 (1)

<http://www.energymining.sa.gov.au/petroleum>

W:

Level 7, 11 Waymouth Street, ADELAIDE SA 5000
 GPO Box 320, ADELAIDE SA 5001
 DX 541



Government of South Australia
 Department for Energy and Mining

Out of scope

Clause 6 (1)

From: Clause 6 (1)
Sent: Tuesday, 20 August 2019 3:11 PM
To: Clause 6 (1)
Cc: Malavazos, Michael (DEM); Pepicelli, Dominic (DEM); Clause 6 (1)
Subject: RE: Strz Incident Report(s)

Hi Clause 6 (1)

The investigation report is well underway and will provided to you ahead of deadline.

Will do my best to get to you in advance.

Thanks

Clause 6 (1)

From: Clause 6 (1)
Sent: Tuesday, 20 August 2019 12:05 PM
To: Clause 6 (1)
Cc: Michael Malavazos <MICHAEL.MALAVAZOS@SA.GOV.AU>; Pepicelli, Dominic (DEM) <Dominic.Pepicelli@sa.gov.au>
Subject: ![EXT]: Strz Incident Report(s)

Hi Clause 6 (1)

Just looking for an update as to when we can expect your incident investigation report(s) relating to the Strz incidents in July?

The requirement is within three months of the incident, but we often receive the report in advance of the deadline.

Kind Regards,

Clause 6 (1)

Energy Resources Division
 Department for Energy and Mining

Clause 6 (1) | W:
<http://www.energymining.sa.gov.au/petroleum>

Level 7, 11 Waymouth Street, ADELAIDE SA 5000
 GPO Box 320, ADELAIDE SA 5001
 DX 541

Out of scope

Clause 6 (1)

From: Clause 6 (1)
Sent: Tuesday, 1 October 2019 9:16 AM
To: Malavazos, Michael (DEM)
Cc: Clause 6 (1) Spencer, Jarrod (DEM); Howell, Scott (DEM); DEM:Engineering; Clause 6 (1)
Subject: Submission of comprehensive report for Out of scope Toolachee incident
Attachments: 191001 Strzelecki incident 3 monthly report.pdf

Good Morning Michael.

On behalf of Clause 6 (1) please find attached the comprehensive report for the serious incident at Out of scope Toolachee pipeline pig receiver facilities that occurred on 1 July 2019.

Please don't hesitate to contact Clause 6 (1) or myself if you require any further information.

Kind regards

Clause 6 (1)



Clause 6 (1)
 Santos Limited, 60 Flinders Street
 Adelaide SA 5000
 Clause 6 (1)
   santos.com

Santos Ltd A.B.N. 80 007 550 923

Disclaimer: The information contained in this email is intended only for the use of the person(s) to whom it is addressed and may be confidential or contain privileged information. If you are not the intended recipient you are hereby notified that any perusal, use, distribution, copying or disclosure is strictly prohibited. If you have received this email in error please immediately advise us by return email and delete the email without making a copy. **Please consider the environment before printing this email**

Santos Ltd
ABN 80 007 550 923
Santos Centre
60 Flinders Street
Adelaide South Australia 5000
GPO Box 2455
Adelaide South Australia 5001
Telephone: 61 8 8116 5000
www.santos.com



1 October 2019

Mr Michael Malavazos
Director – Engineering Operations Branch
Energy Resources Division
Department for Energy and Mining
GPO Box 320
Adelaide SA 5001

By Email: Michael.Malavazos@sa.gov.au
cc. DEM.Engineering@sa.gov.au

Dear Michael,

Comprehensive report: Toolachee pig receiver Out of scope **1 July 2019**

Please find attached the comprehensive report in relation to the loss of containment incidents (LOCI) at the Toolachee pipeline pig receiver Out of scope on 1 July 2019.

Santos classifies this incident as a Serious Incident as per section 85(1)(e) of the *Petroleum and Geothermal Energy Act 2000*. The attached report has been prepared in accordance with clause 32(4) of the *Petroleum and Geothermal Energy Regulations 2013*.

If you have any further questions please do not hesitate to contact me or Clause 6 (1)
Clause 6 (1)

Yours sincerely,
Clause 6 (1)

Santos Limited

Attachment 1 — Comprehensive Report

The Time And Date Of The Occurrence Of The Incident And The Time And Date Of Detection

- 10.30am 1 July 2019 – Toolachee pig receiver LOCI
- Out of scope

The events were detected at the time they occurred.

The Place where incident occurred (using appropriate co-ordinates or distances from significant topographical features)

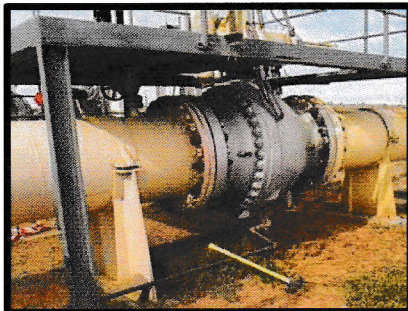
- Toolachee pig receiver: Clause 7 (1) (c)
- Strzelecki 'T' Junction facility on Dullingari Road, Cooper Basin, PPL15
- Out of scope

Regulation 32 (4) (a)

The results of any assessment or investigation of the conditions or circumstances that caused or contributed to the occurrence of the incident, including an assessment of the effectiveness of the design, procedures and management systems that were in place to prevent the incident occurring

Toolachee Pig Receiver

- The pig receiver valve was passing after 10 years in service.
 - There was a large cantilevered mass (drain line) connecting the Toolachee pig receiver isolation valve body to the pig receiver barrel sump.
 - During the reinstatement of an actuator onto a 30" ball valve, a hammer being used to assist in the positioning of the actuator was accidentally dropped, rupturing a 1" cavity drain valve nipple
 - Dropping of objects onto live infrastructure was not considered as part of work planning or execution.
 - Floor grating of platform removed leaving an opening for dropped objects.
 - Out of scope
- does not adequately address dropped objects in relation to working over live lines.



Out of scope

The cause of the incident

The impact between hammer and drain line was the cause for 1" nipple failure at the Toolachee pig receiver.

Out of scope

Assessment of the effectiveness of the design

- The platform was designed to provide access to the actuator to operate and maintain
 - + The removable floor plate design also provided access should the ball valve require replacing.
 - + Permanent cavity drain line was installed unsupported by an effective change management process.

Out of scope

Procedures and management system that were in place to prevent incident occurring

- Out of scope . The risks associated with the heavy lift over pipework was identified and controls in place. The risk of an object falling onto live infrastructure was not identified.
- Out of scope
- Integrity management plan.

Regulation 32 (4)(b)

The nature and extent of any damage to the environment that occurred as a result of the incident

Refer Attachment 2 – Environmental Assessment.

Regulation 32(4)(c)

The steps that have been taken or are proposed to be taken, to clean up and rehabilitate the area affected by the incident

Refer Attachment 2 – Environmental Assessment.

Regulation 32(4)(d)

The steps that have been taken or are proposed to be taken to prevent a recurrence of the incident

Clause 7 (1) (c)

- Conduct audit of remaining pig receivers and launchers in Cooper Upstream and ensure lines from drain body have bracing installed as near as possible to valve body.
- Undertake hazop of liquids handling system pre-return to start-up and complete all actions

Out of scope

- Develop a "Critical" procedure for Toolachee trunkline blowdown including consideration of valve line-up and prompt for procedure use.
- Update **Out of scope** to capture risk of objects falling onto live infrastructure.
- Update SMS to mandate 5 yearly hazard studies for all critical safety systems within operated facilities.
- Create satellite-specific IMPs for all Cooper Upstream satellites, including coverage of piping.

Clause 6 (1)

From: Malavazos, Michael (DEM)
Sent: Wednesday, 2 October 2019 5:44 PM
To: Clause 6 (1)
 Spencer, Jarrod (DEM); Howell, Scott (DEM); DEM:Engineering; Clause 6 (1) Webb, Mieka (DEM)
Subject: RE: Submission of comprehensive report for Out of scope Toolachee incident

Clause 6 (1)

I'm currently reviewing the report and have a number of initial questions if you can clarify for me please and provide any additional information as required:

- 1) Regarding the Toolachee pig receiver, the large cantilevered mass (drain line) referred to in the 2nd dot point in your comprehensive report under Regulation 32(4)(a) requirements, I presume is the 1" drain line that was connected to the 1" cavity drain valve nipple that was ruptured as a result of the hammer dropping onto it?
- 2) It's not clear from the picture nor the description in the report as to whether the drain line was supported immediately below the drain valve nipple? I presume that is what "cantilevered" under the second dot point is referring to?

Out of scope

Thanks and I'd appreciate if you can get back to me before Friday as I'm keen to close out our review of the report by next week. That's of course not say that I may not have more questions as I continue to work through your report.

Michael Malavazos (FICHEM)
 Director Engineering Operations

Energy Resources Division
 Department for Energy and Mining

M: Clause 6 (1)
 T +61 (8) 842 92470
 E michael.malavazos@sa.gov.au
 GPO Box 320, Adelaide, South Australia 5001
 Level 7, 11 Waymouth Street, Adelaide 5000



Government of South Australia
Department for Energy and Mining

DISCLAIMER:

The information in this e-mail may be confidential and/or legally privileged. It is intended solely for the addressee. Access to this e-mail by anyone else is unauthorised. If you are not the intended recipient, any disclosure, copying, distribution or any action taken or omitted to be taken in reliance on it, is prohibited and may be unlawful. If you have received this email in error, please delete it from your system and notify the sender immediately. DEM does not represent, warrant or guarantee that the integrity of this communication has been maintained or that the communication is free of errors, virus or interference.

From: Clause 6 (1)
Sent: Tuesday, 1 October 2019 9:16 AM
To: Malavazos, Michael (DEM) <Michael.Malavazos@sa.gov.au>
Cc: Clause 6 (1) Spencer, Jarrod (DEM) <Jarrod.Spencer@sa.gov.au>; Howell, Scott (DEM) <Scott.Howell@sa.gov.au>; DEM:Engineering <DEM.Engineering@sa.gov.au>; Clause 6 (1)
Subject: Submission of comprehensive report for Out of scope Toolachee incident

Good Morning Michael.

On behalf of Clause 6 (1) please find attached the comprehensive report for the serious incident at Strzelecki and Toolachee pipeline pig receiver facilities that occurred on 1 July 2019.

Please don't hesitate to contact Clause 6 (1) or myself if you require any further information.

Kind regards

Clause 6 (1)



Clause 6 (1)

Santos Limited, 60 Flinders Street
Adelaide SA 5000

Clause 6 (1)



santos.com

Santos Ltd A.B.N. 80 007 550 923

Disclaimer: The information contained in this email is intended only for the use of the person(s) to whom it is addressed and may be confidential or contain privileged information. If you are not the intended recipient you are hereby notified that any perusal, use, distribution, copying or disclosure is strictly prohibited. If you have received this email in error please immediately advise us by return email and delete the email without making a copy. **Please consider the environment before printing this email**

Clause 6 (1)

From: Clause 6 (1)
Sent: Monday, 21 October 2019 9:26 AM
To: Malavazos, Michael (DEM); Clause 6 (1)
Cc: Spencer, Jarrod (DEM); Howell, Scott (DEM); DEM:Engineering; Clause 6 (1) Webb, Mieka (DEM)
Subject: FW: Submission of comprehensive report for Out of scope Toolachee incident

Hi Mike,

Apologies for delay, we've been very busy of late. My comments below.

Clause 6 (1)

From: Malavazos, Michael (DEM) [<mailto:Michael.Malavazos@sa.gov.au>]
Sent: Wednesday, 2 October 2019 5:44 PM
To: Clause 6 (1)
Cc: Clause 6 (1) Spencer, Jarrod (DEM) <Jarrod.Spencer@sa.gov.au>; Scott Howell <Scott.Howell@sa.gov.au>; DEM:Engineering <DEM.Engineering@sa.gov.au>; Clause 6 (1) Webb, Mieka (DEM) <Mieka.Webb@sa.gov.au>
Subject: ![EXT]: RE: Submission of comprehensive report for Out of scope Toolachee incident

Clause 6 (1)

I'm currently reviewing the report and have a number of initial questions if you can clarify for me please and provide any additional information as required:

- 1) Regarding the Toolachee pig receiver, the large cantilevered mass (drain line) referred to in the 2nd dot point in your comprehensive report under Regulation 32(4)(a) requirements, I presume is the 1" drain line that was connected to the 1" cavity drain valve nipple that was ruptured as a result of the hammer dropping onto it?

Yes the mass referred to is simply the drain line itself which ultimately ties into the 30" valve body.

- 2) It's not clear from the picture nor the description in the report as to whether the drain line was supported immediately below the drain valve nipple? I presume that is what "cantilevered" under the second dot point is referring to?

The drain line was not supported immediately below the drain valve nipple. This is indeed the basis of referring to it as "cantilevered" in the second dot point.

Out of scope

Out of scope

Thanks and I'd appreciate if you can get back to me before Friday as I'm keen to close out our review of the report by next week. That's of course not say that I may not have more questions as I continue to work through your report.

Michael Malavazos (FICHEM)
Director Engineering Operations

Energy Resources Division
Department for Energy and Mining

M: **Clause 6 (1)**
T +61 (8) 842 92470
E michael.malavazos@sa.gov.au
GPO Box 320, Adelaide, South Australia 5001
Level 7, 11 Waymouth Street, Adelaide 5000



Government of South Australia
Department for Energy and Mining

DISCLAIMER:

The information in this e-mail may be confidential and/or legally privileged. It is intended solely for the addressee. Access to this e-mail by anyone else is unauthorised. If you are not the intended recipient, any disclosure, copying, distribution or any action taken or omitted to be taken in reliance on it, is prohibited and may be unlawful. If you have received this email in error, please delete it from your system and notify the sender immediately. DEM does not represent, warrant or guarantee that the integrity of this communication has been maintained or that the communication is free of errors, virus or interference.

From: **Clause 6 (1)**
Sent: Tuesday, 1 October 2019 9:16 AM
To: Malavazos, Michael (DEM) <Michael.Malavazos@sa.gov.au>
Cc: **Clause 6 (1)**; Spencer, Jarrod (DEM) <Jarrod.Spencer@sa.gov.au>; Howell, Scott (DEM) <Scott.Howell@sa.gov.au>; DEM:Engineering <DEM.Engineering@sa.gov.au>, **Clause 6 (1)**
Subject: Submission of comprehensive report for **Out of scope** Toolachee incident

Good Morning Michael.

On behalf of **Clause 6 (1)** please find attached the comprehensive report for the serious incident at Strzelecki and Toolachee pipeline pig receiver facilities that occurred on 1 July 2019.

Please don't hesitate to contact **Clause 6 (1)** or myself if you require any further information.

Kind regards
Clause 6 (1)

Clause 6 (1)

From: Malavazos, Michael (DEM)
Sent: Wednesday, 30 October 2019 12:22 PM
To: Clause 6 (1)
Cc: Spencer, Jarrod (DEM); Howell, Scott (DEM); DEM:Engineering; Webb, Mieka (DEM)
Subject: RE: Submission of comprehensive report for ^{Out of scope} Toolachee incident
Attachments: 191001 Strzelecki incident 3 monthly report (002).pdf; 1280-010-PID-0006_ENG_DWGN-225833-P[1] flare and utilities.TIFF

Thanks Clause 6 (1)

Please see my comments and questions in red font in response to your responses. To avoid email fatigue I recommend that we look at addressing these at the upcoming upstream quarterly meeting(s) where we can discuss and post that I can look at having this incident appropriately closed out. Some of the actions identified under Regulation 32(4) section of your report may need to be kept as a standing item on quarterly compliance meeting agenda until closed out.

I'll ask Mieka to ensure these issues are covered on the next quarterly meeting agenda.

Regards,

Michael Malavazos (FICHEM)
 Director Engineering Operations

Energy Resources Division
 Department for Energy and Mining

M: Clause 6 (1)
 T +61 (8) 842 92470
 E michael.malavazos@sa.gov.au
 GPO Box 320, Adelaide, South Australia 5001
 Level 7, 11 Waymouth Street, Adelaide 5000



Government of South Australia
 Department for Energy and Mining

DISCLAIMER:

The information in this e-mail may be confidential and/or legally privileged. It is intended solely for the addressee. Access to this e-mail by anyone else is unauthorised. If you are not the intended recipient, any disclosure, copying, distribution or any action taken or omitted to be taken in reliance on it, is prohibited and may be unlawful. If you have received this email in error, please delete it from your system and notify the sender immediately. DEM does not represent, warrant or guarantee that the integrity of this communication has been maintained or that the communication is free of errors, virus or interference.

From: Clause 6 (1)
Sent: Monday, 21 October 2019 9:26 AM
To: Malavazos, Michael (DEM) <Michael.Malavazos@sa.gov.au>; Clause 6 (1)
Cc: Spencer, Jarrod (DEM) <Jarrod.Spencer@sa.gov.au>; Howell, Scott (DEM) <Scott.Howell@sa.gov.au>; DEM:Engineering <DEM.Engineering@sa.gov.au>; Clause 6 (1) Webb, Mieka (DEM) <Mieka.Webb@sa.gov.au>
Subject: FW: Submission of comprehensive report for ^{Out of scope} Toolachee incident

Hi Mike,

Apologies for delay, we've been very busy of late. My comments below.

Clause 6 (1)

From: Malavazos, Michael (DEM) [<mailto:Michael.Malavazos@sa.gov.au>]
Sent: Wednesday, 2 October 2019 5:44 PM
To: Clause 6 (1) [redacted]
[redacted] Spencer, Jarrod (DEM) <Jarrod.Spencer@sa.gov.au>; Scott Howell <Scott.Howell@sa.gov.au>; DEM:Engineering <DEM.Engineering@sa.gov.au>; Clause 6 (1) [redacted]
[redacted] Webb, Mieka (DEM) <Mieka.Webb@sa.gov.au>
Subject: ![EXT]: RE: Submission of comprehensive report for ^{Out of scope} [redacted] Toolachee incident

Clause 6 (1)

I'm currently reviewing the report and have a number of initial questions if you can clarify for me please and provide any additional information as required:

- 1) Regarding the Toolachee pig receiver, the large cantilevered mass (drain line) referred to in the 2nd dot point in your comprehensive report under Regulation 32(4)(a) requirements, I presume is the 1" drain line that was connected to the 1" cavity drain valve nipple that was ruptured as a result of the hammer dropping onto it?

Yes the mass referred to is simply the drain line itself which ultimately ties into the 30" valve body. Ok thanks for clarification.

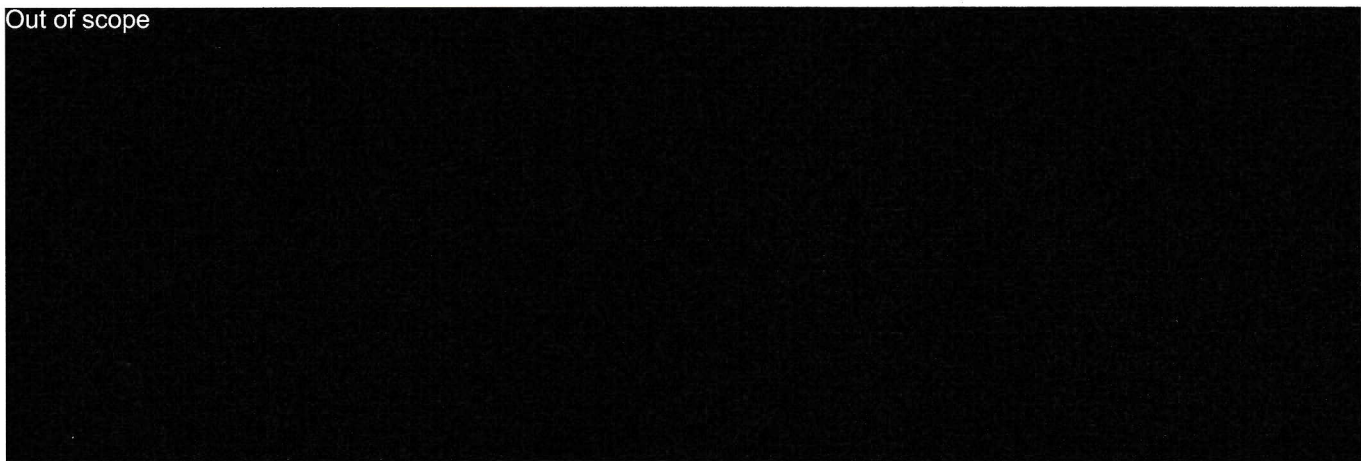
- 2) It's not clear from the picture nor the description in the report as to whether the drain line was supported immediately below the drain valve nipple? I presume that is what "cantilevered" under the second dot point is referring to?

The drain line was not supported immediately below the drain valve nipple. This is indeed the basis of referring to it as "cantilevered" in the second dot point.

Thanks for clarification, arguably a causal factor relating to design leading to the initial LOCI and in turn need to de-pressure the pipeline ^{Out of scope} [redacted]. DEM notes action to audit all valve drain lines for appropriate bracing at all pig receivers and launchers. I'd appreciate if the status of this audit until such time it is completed is reported at future upstream compliance meetings.

In relation to de-pressure to flare at the Strzelecki satellite facility, as you have stated "This was done per design through line ^{Clause 7 (1) (c)} [redacted] directing flow through fully opened valves to ^{Clause 7 (1) (c)} [redacted]". I'd appreciate clarification what this line and valve are on the ^{Clause 7 (1) (c)} [redacted] that was provided to us as they are not clear to us.

Out of scope



Out of scope

Thanks and I'd appreciate if you can get back to me before Friday as I'm keen to close out our review of the report by next week. That's of course not say that I may not have more questions as I continue to work through your report.

Michael Malavazos (FICHEM)
Director Engineering Operations

Energy Resources Division
Department for Energy and Mining

M: **Clause 6 (1)**
T +61 (8) 842 92470
E michael.malavazos@sa.gov.au
GPO Box 320, Adelaide, South Australia 5001
Level 7, 11 Waymouth Street, Adelaide 5000



Government of South Australia
Department for Energy and Mining

DISCLAIMER:

The information in this e-mail may be confidential and/or legally privileged. It is intended solely for the addressee. Access to this e-mail by anyone else is unauthorised. If you are not the intended recipient, any disclosure, copying, distribution or any action taken or omitted to be taken in reliance on it, is prohibited and may be unlawful. If you have received this email in error, please delete it from your system and notify the sender immediately. DEM does not represent, warrant or guarantee that the integrity of this communication has been maintained or that the communication is free of errors, virus or interference.

From: **Clause 6 (1)**
Sent: Tuesday, 1 October 2019 9:16 AM
To: Malavazos, Michael (DEM) <Michael.Malavazos@sa.gov.au>
Cc: **Clause 6 (1)**; Jarrod (DEM) <Jarrod.Spencer@sa.gov.au>; Howell, Scott (DEM) <Scott.Howell@sa.gov.au>; DEM:Engineering <DEM.Engineering@sa.gov.au>; **Clause 6 (1)**
Subject: Submission of comprehensive report for **Out of scope** Toolachee incident

Good Morning Michael.

On behalf of **Clause 6 (1)** please find attached the comprehensive report for the serious incident at **Out of scope** Toolachee pipeline pig receiver facilities that occurred on 1 July 2019.

Please don't hesitate to contact **Clause 6 (1)** or myself if you require any further information.

Kind regards

Clause 6 (1)



Clause 6 (1)

Santos Limited, 60 Flinders Street
Adelaide SA 5000

Clause 6 (1)



santos.com

Santos Ltd A.B.N. 80 007 550 923

Disclaimer: The information contained in this email is intended only for the use of the person(s) to whom it is addressed and may be confidential or contain privileged information. If you are not the intended recipient you are hereby notified that any perusal, use, distribution, copying or disclosure is strictly prohibited. If you have received this email in error please immediately advise us by return email and delete the email without making a copy. **Please consider the environment before printing this email**

Santos Ltd
ABN 80 007 550 923
Santos Centre
60 Flinders Street
Adelaide South Australia 5000
GPO Box 2455
Adelaide South Australia 5001
Telephone: 61 8 8116 5000
www.santos.com

Santos

1 October 2019

Mr Michael Malavazos
Director – Engineering Operations Branch
Energy Resources Division
Department for Energy and Mining
GPO Box 320
Adelaide SA 5001

By Email: Michael.Malavazos@sa.gov.au
cc. DEM.Engineering@sa.gov.au

Dear Michael,

Comprehensive report: Toolachee pig receiver ^{Out of scope} [redacted] **1 July 2019**

Please find attached the comprehensive report in relation to the loss of containment incidents (LOCI) at the Toolachee pipeline pig receiver ^{Out of scope} [redacted] on 1 July 2019.

Santos classifies this incident as a Serious Incident as per section 85(1)(e) of the *Petroleum and Geothermal Energy Act 2000*. The attached report has been prepared in accordance with clause 32(4) of the *Petroleum and Geothermal Energy Regulations 2013*.

If you have any further questions please do not hesitate to contact me or ^{Clause 6 (1)} [redacted]

^{Clause 6 (1)} [redacted]

Yours sincerely,

^{Clause 6 (1)} [redacted]

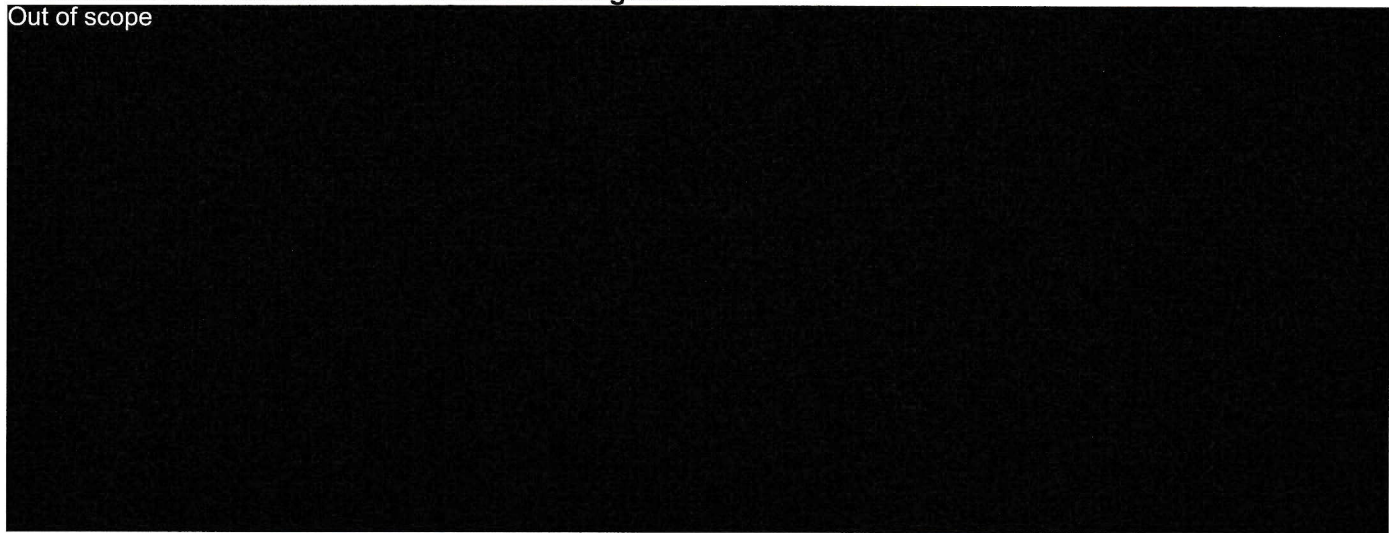
Santos Limited

Clause 6 (1)

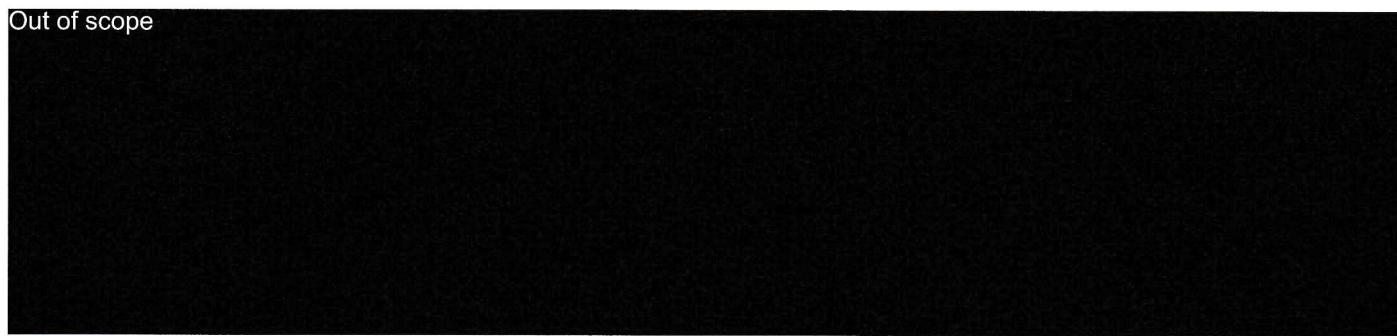
From: Webb, Mieka (DEM)
Sent: Monday, 18 November 2019 3:59 PM
To: Malavazos, Michael (DEM)
Subject: Santos notes from QM

Discussion of actions from incident investigation:

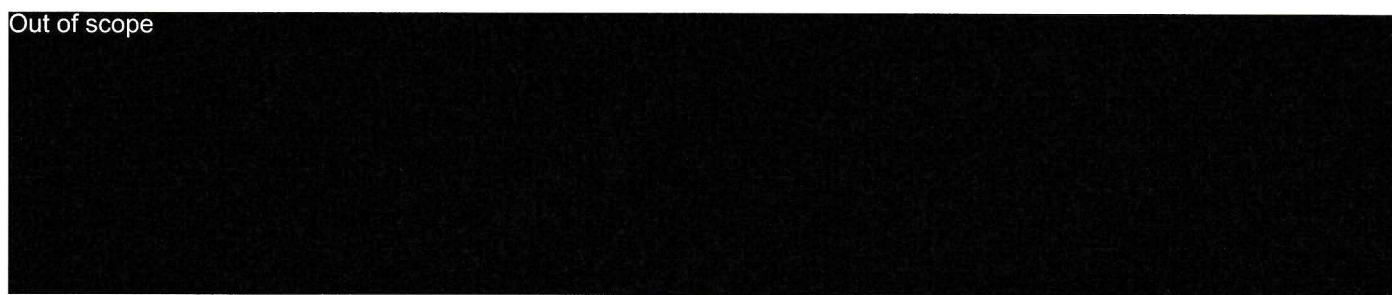
Out of scope



Out of scope



Out of scope



4. Update  **to capture risk of objects falling onto live infrastructure.**

Santos advised that their new "Lifesaving rules" were recently implemented, and would act to help address the risk of dropped/falling objects.

- DEM noted for Santos to clarify line numbers (as per MM's email) outside of the quarterly meeting.
- Santos noted that the fitting (which became dislodged from the valve body) did not appear to have any pre-existing weakness (other than the lack of support) prior to being hit by the dropped object

- DEM noted that they were satisfied with the findings of the incident report, and would seek to formally close out the report in the near future. They would, however, continue to follow the long term actions through the upstream QMs (#1 and #2 above).

Out of scope

Cheers

Mieka Webb

Lead Engineer – Pipelines and Facilities

Energy Resources Division

Department for Energy and Mining

T +61 (8) 8429 2435

E mieka.webb@sa.gov.au

GPO Box 320, Adelaide, South Australia 5001

Level 4, 11 Waymouth Street, Adelaide 5000



Government of South Australia

Department for Energy and Mining

DISCLAIMER:

The information in this e-mail may be confidential and/or legally privileged. It is intended solely for the addressee. Access to this e-mail by anyone else is unauthorised. If you are not the intended recipient, any disclosure, copying, distribution or any action taken or omitted to be taken in reliance on it, is prohibited and may be unlawful. If you have received this email in error, please delete it from your system and notify the sender immediately. DEM does not represent, warrant or guarantee that the integrity of this communication has been maintained or that the communication is free of errors, virus or interference.

Clause 6 (1)

From: Malavazos, Michael (DEM)
Sent: Tuesday, 26 November 2019 6:36 PM
To: Clause 6 (1)
 Spencer, Jarrod (DEM); Howell, Scott (DEM); DEM:Engineering; Webb, Mieka (DEM);
 Clause 6 (1)
Subject: RE: ^{Out of scope} Toolachee incident
Attachments: 2019_139.pdf; DEM ^{Out of scope} 1st July 2019 ^{Out of scope} incident Investigation Report.pdf

Clause 6 (1)

Please find attached DEM-ERD close out letter and investigation report into above mentioned incident. As advised in letter, all close actions will be monitored and followed up through quarterly upstream meeting and where convenient and relevant through routine field satellite inspections. If you have any questions please feel free to contact me at your convenience.

Kind regards,

Michael Malavazos (FIChemE)
 Director Engineering Operations

Energy Resources Division
 Department for Energy and Mining

M: ^{Clause 6 (1)}
 T +61 (8) 842 92470
 E michael.malavazos@sa.gov.au
 GPO Box 320, Adelaide, South Australia 5001
 Level 7, 11 Waymouth Street, Adelaide 5000



Government of South Australia
 Department for Energy and Mining

DISCLAIMER:

The information in this e-mail may be confidential and/or legally privileged. It is intended solely for the addressee. Access to this e-mail by anyone else is unauthorised. If you are not the intended recipient, any disclosure, copying, distribution or any action taken or omitted to be taken in reliance on it, is prohibited and may be unlawful. If you have received this email in error, please delete it from your system and notify the sender immediately. DEM does not represent, warrant or guarantee that the integrity of this communication has been maintained or that the communication is free of errors, virus or interference.

From: ^{Clause 6 (1)}
Sent: Tuesday, 1 October 2019 9:16 AM
To: Malavazos, Michael (DEM) <Michael.Malavazos@sa.gov.au>
Cc: ^{Clause 6 (1)} Spencer, Jarrod (DEM) <Jarrod.Spencer@sa.gov.au>; Howell, Scott (DEM) <Scott.Howell@sa.gov.au>; DEM:Engineering <DEM.Engineering@sa.gov.au>; ^{Clause 6 (1)}
Subject: Submission of comprehensive report for ^{Out of scope} /Toolachee incident

Good Morning Michael.

On behalf of **Clause 6 (1)** please find attached the comprehensive report for the serious incident at **Out of scope** Toolachee pipeline pig receiver facilities that occurred on 1 July 2019.

Please don't hesitate to contact **Clause 6 (1)** or myself if you require any further information.

Kind regards

Clause 6 (1)



Clause 6 (1)

Santos Limited, 60 Flinders Street
Adelaide SA 5000

Clause 6 (1)



santos.com

Santos Ltd A.B.N. 80 007 550 923

Disclaimer: The information contained in this email is intended only for the use of the person(s) to whom it is addressed and may be confidential or contain privileged information. If you are not the intended recipient you are hereby notified that any perusal, use, distribution, copying or disclosure is strictly prohibited. If you have received this email in error please immediately advise us by return email and delete the email without making a copy. **Please consider the environment before printing this email**

Our ref:



26 November 2019

Clause 6 (1)

Santos Limited
GPO Box 2455
ADELAIDE SA 5001

Attention: Clause 6 (1)

Dear Clause 6 (1)

Toolachee Pig Receiver Out of scope **1st July 2019**

Thank you for Santos' serious incident report submitted on the 1st October 2019 in accordance with Regulation 32(4) under the *Petroleum and Geothermal Energy Act 2000* for the above mentioned incident. In light of this report and additional information gathered separately by DEM-ERD, please find attached DEM-ERD's report closing this incident out conditional to the following actions as detailed in the attached report being satisfactorily closed out by Santos:

Out of scope

- Develop critical procedure for Toolachee Trunkline blow down operation.

Out of scope

- Update the company's Falls and Falling Objects risk mitigation standard to capture risk of falling objects on live infrastructure.
- Include in its development of the critical procedure for the Toolachee trunkline blow down operation all other similar trunklines and facilities.

ENERGY RESOURCES DIVISION

Level 7, 11 Waymouth Street, Adelaide SA 5000 | GPO Box 320 Adelaide SA 5001 | DX452
Tel (+61) 8 8429 2435 | ABN 83 768 683 934

Out of scope

- Review maintenance programs on isolation valves relating to pigging operations to ensure passing valves do not hinder or delay such operations.

DEM-ERD will review progress of close out of these actions through the quarterly upstream compliance meetings and where necessary through its routine field inspections.

Please note that in accordance with DEM-ERD's compliance policy, details of this incident and the findings as documented in the attached report will be published in DEM-ERD's next annual compliance report.

If you have any queries in relation to this matter please feel free to contact me at your convenience.

Yours sincerely,



Michael Malavazos
Director – Engineering Operations Branch
Energy Resources Division
Department for Energy and Mining
Sub Delegate of the Minister for Mineral Resources and Energy

Attachment: DEM-ERD Investigation Report: Strzelecki **Out of scope** incident 1st July 2019

Department for Energy and Mining –Energy Resources Division Investigation Report

Strzelecki **Out of scope** incident 1st July 2019

Author: Michael Malavazos, Director Engineering Operations, DEM-ERD
Licensee: South Australian Cooper Basin Joint Venture
Operator: Santos Ltd

Date of report: 19th November 2019



Contents

Introduction.....	1
Summary	2
Incident description	3
Cause of the incident.....	3
Design causal factors	3
Procedural/Management System Factors.....	4
Extent of environmental damage	5
Clean up and rehabilitation	6
Preventative and corrective actions	6
DEM-ERD Conclusions/Recommendations.....	7
Enforcement Actions.....	7
Abbreviations	8

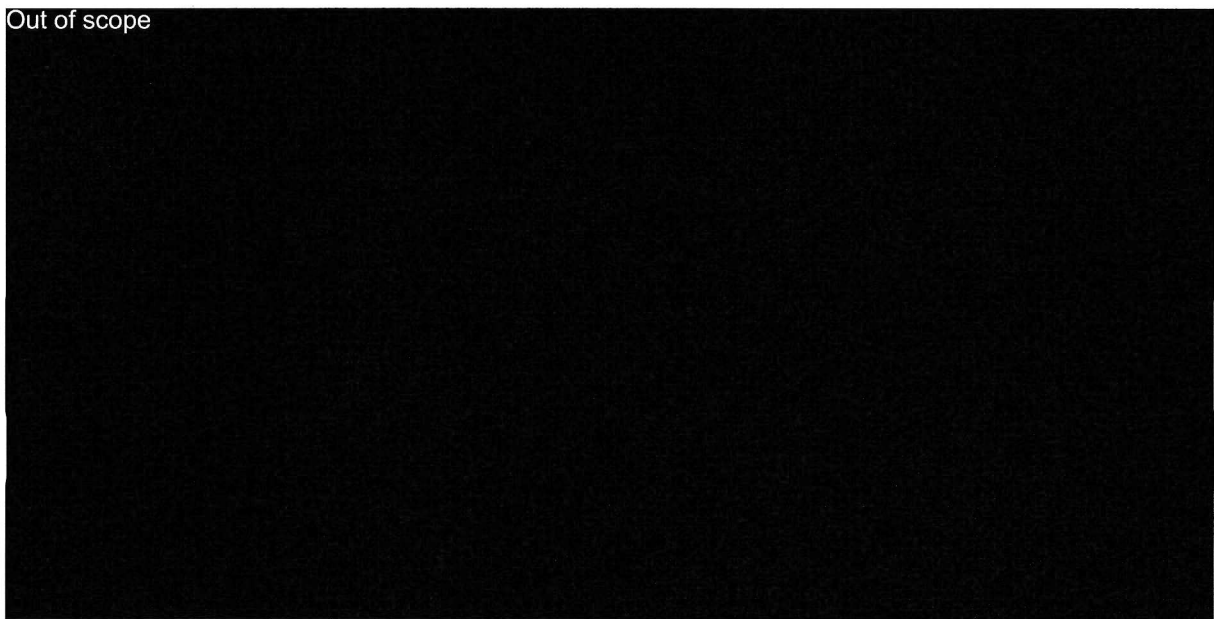
- DEM-ERD inspection of the incident site on the 4th July 2019;
- DEM-ERD review of Santos' 16th November 2018 fitness for purpose report
Out of scope
- Santos' generic IMP for Gas Satellite and Nodal Compressors Out of scope
and
- Meetings and discussions with Santos regarding this incident.

Summary

DEM-ERD's investigation found that a number of design, maintenance and procedural deficiencies led to both the initiating incident at the pig receiver isolation valve Out of scope. In summary, the following causal factors were:

- Deficiencies in the two controls illustrated in the bowtie relating to the isolation valve LOCI (Figure 2). The first, the adequacy of the dropped object risk assessment and second, the mechanical bracing and support of the drain line. Had either or both of these been effective the rupturing of the drain valve nipple would have been avoided.

Out of scope



Santos have implemented a number of corrective actions as detailed in this report, that will be subject to DEM-ERD's ongoing surveillance, to ensure the risk of the recurrence of any such incident is ALARP.

Incident description

- During a reinstatement operation of an actuator onto a 30 inch isolation valve at the Toolachee pig receiver, an object (sledge hammer) was dropped onto the valve cavity drain line, dislodging the 1 inch cavity drain valve from the pig receiver valve body at the nipple (Photos 1&2). This resulted in a loss of containment as there was no means of activating the valve to shut in since the actuator was not in place as it was in the process of being replaced as part of this maintenance work.
- As part of the emergency depressurisation of the pipeline, flow from the Toolachee Trunkline was diverted **Out of scope**.

Out of scope

Cause of the incident

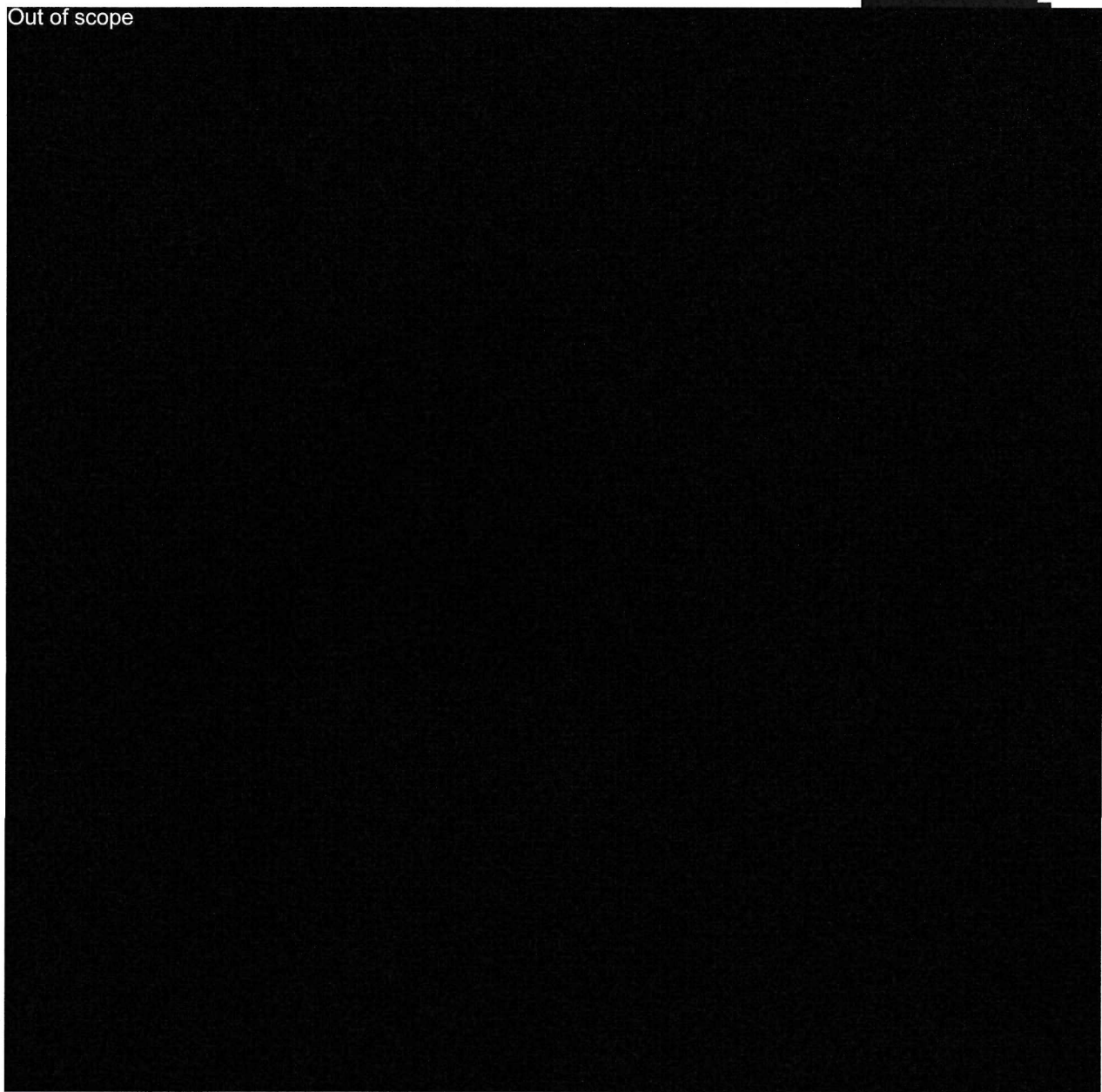
In the context of Regulation 32(4)(a), DEM-ERD's investigation concluded that the following design and system causal factors contributed significantly to the LOCI's at the Toolachee pig receiver and at the flare system at the Strzelecki Satellite.

Design causal factors

- Bracing and securing of the drain line from the valve cavity as an effective physical barrier (Figure 2) was inadequate, creating a sufficient cantilever effect when the drain line was struck by the dropped sledge hammer to rupture the 1" cavity drain valve nipple.

Out of scope

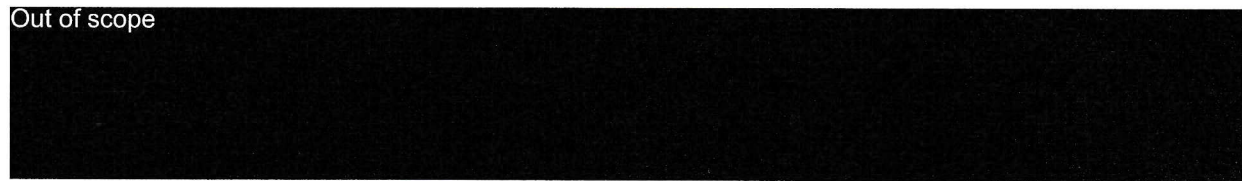
Out of scope



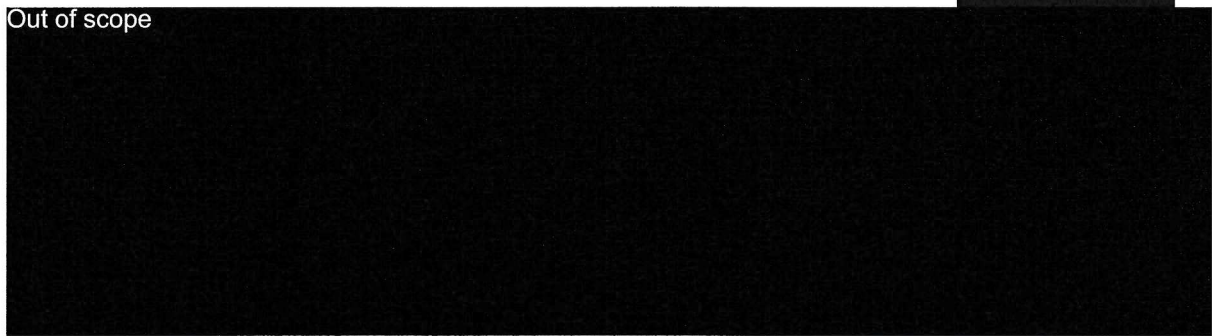
Procedural/Management System Factors

- Dropped objects onto live pipework was found to form part of the work planning or execution process and not specifically captured in Santos' falls and falling objects management standard/procedure. As illustrated in the bowtie (Figure 2), DEM-ERD believes that a dropped object risk control procedure implemented effectively would have prevented the initiating incident at the Toolachee pig receiver as a result of the dropped hammer.


Out of scope




Out of scope



Furthermore, DEM-ERD acknowledge that the maintenance work on this valve at the time of the initiating event was for the purpose of reinstating pigging operations. Out of scope

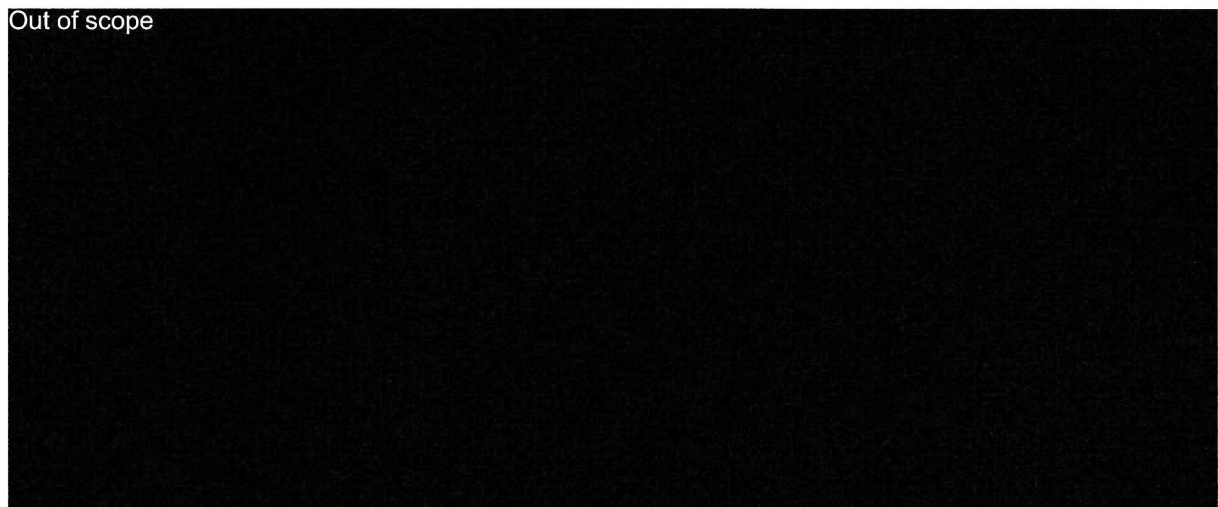


Out of scope




- Discharge end of the run down HDPE line was found to be blocked.

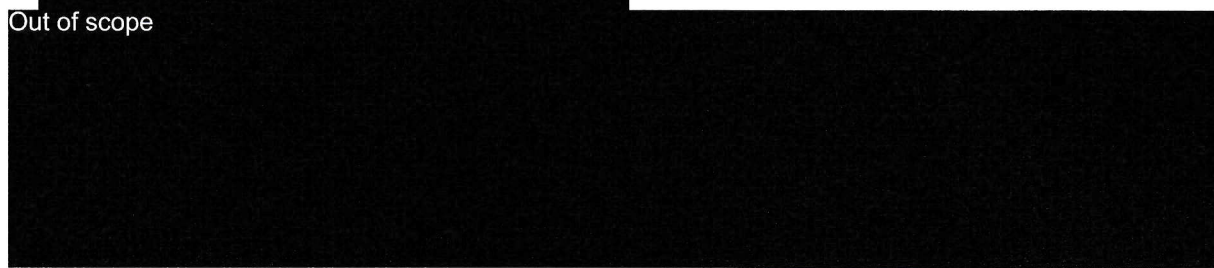
Out of scope



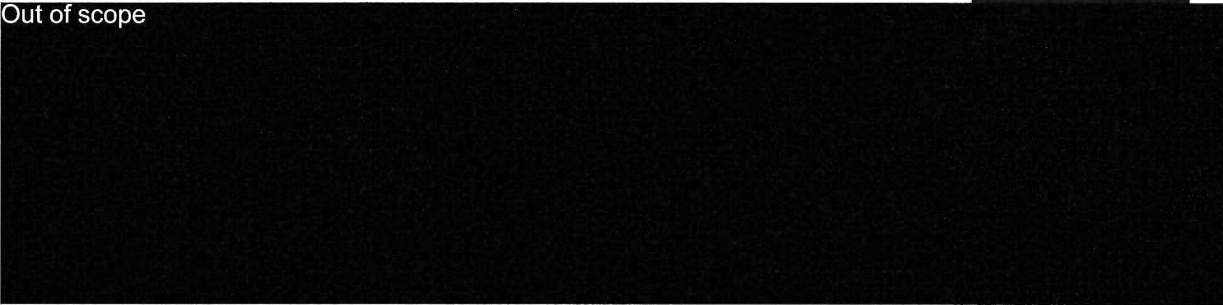
Out of scope



Out of scope



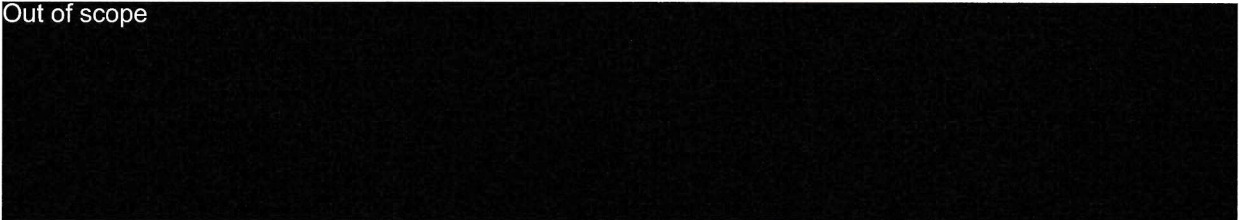
Out of scope



Preventative and corrective actions

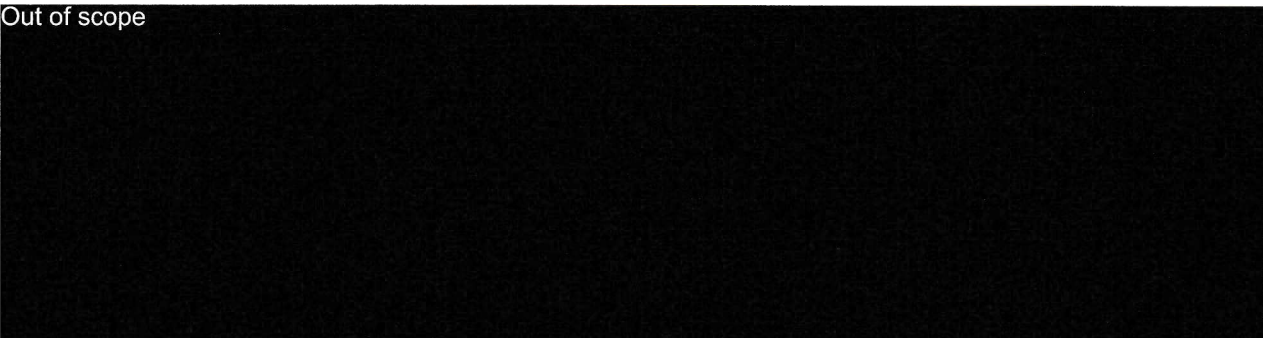
Santos' comprehensive investigation report prepared and submitted in accordance with Regulation 32(4) identified the following corrective actions for minimising the risk of the recurrence of such an incident to ALARP.

Out of scope



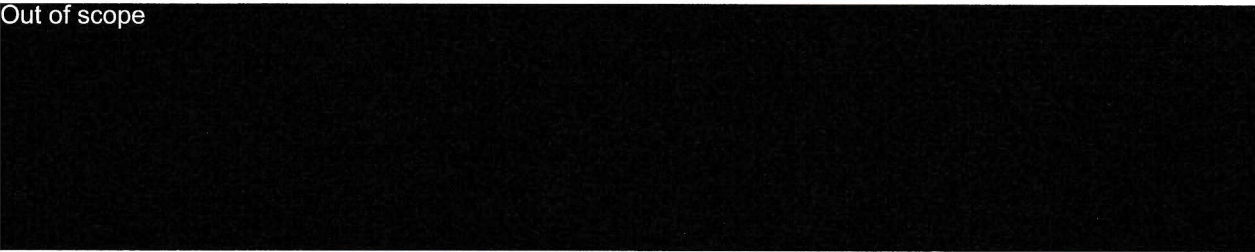
- Audit all pig receivers and launchers to ensure lines from drain valve body are suitably braced and secured.

Out of scope



- Develop critical procedure for Toolachee Trunkline blow down operation.

Out of scope



- Santos to update its Falls and Falling Objects risk mitigation standard to capture risk of falling objects on live infrastructure.

DEM-ERD Conclusions/Recommendations

- DEM-ERD is satisfied that the above listed corrective/preventative actions will address the causal factors as identified in its investigation.
- DEM-ERD will monitor and follow up the progress of implementation and closing out of the above corrective/preventative actions through the quarterly upstream compliance meetings with Santos and through routine site inspections as appropriate.

Out of scope

- Santos should include in its development of the critical procedure for the Toolachee trunkline blow down operation all other similar trunklines and facilities.

Out of scope

- Santos should review its maintenance programs on its isolation valves relating to pigging operations to ensure passing valves do not hinder or delay such operations.

Enforcement Actions

In accordance with DEM-ERD's compliance policy³, to ensure natural justice is appropriately afforded to the licensee, the issues that must be considered when deciding as to whether to pursue more persuasive or punitive enforcement actions under the Act as a result of an incident, include:

- Material damage to the environment and/or safety caused by the incident;
- Occurrence of similar past incidents in operations undertaken by the licensee;
- Licensee's failure to have addressed or implemented similar corrective and/or preventative actions from previous incidents/non-compliances;
- Licensee's history of regulatory compliance;
- Extent to which the licensee has co-operated and engaged in the investigation;

³ [Petroleum and Geothermal Energy Act, Compliance Policy, 2018](#)

- The degree and quality to which the licensee has through its own initiative investigated, identified and addressed the causal factors relating to the incident; and
- The public and regulatory benefit vs cost in pursuing more punitive enforcement actions.

In considering the above issues, DEM-ERD will not pursue more persuasive or punitive enforcement actions beyond Step 1 of its enforcement pyramid⁴, DEM-ERD reached this decision on the basis that DEM-ERD is satisfied that:

- No material safety or environmental damage resulted from this incident.
- The degree of the deficiencies found in the design and system causal factors leading to the incident do not constitute negligence or intent under the due care and industry good practice obligations under section 87 of the PGE Act.
- The corrective actions that Santos will implement will ensure that the risk of such an incident recurring will be managed to ALARP.
- DEM-ERD's ongoing surveillance activities will effectively monitor the implementation of these corrective actions.
- Santos co-operated willingly and openly throughout DEM-ERD's investigation.
- Santos' own investigation as required under Regulation 32(4) was comprehensive and adequately addressed the causal factors detailed in this report and identified the necessary corrective actions to ensure the risk of recurrence of such an incident is both ALARP and acceptable.

Abbreviations

ALARP	As Low As Reasonably Practicable
DEM-ERD	Department for Energy and Mining, Energy Resources Division
LOCI	Loss of Containment Incident
Hazop	Hazard Operability Study
HDPE	High Density Polyethylene
IMP	Integrity Management Plan
PGE Act	South Australian <i>Petroleum and Geothermal Energy Act 2000</i> .
RBI	Risk Based Inspection

⁴ [Petroleum and Geothermal Energy Act, Compliance Policy, 2018](#), page 8



Photo 1: Isolation Valve at Toolachee Trunkline Pig Receiver



Photo 2: Dropped object (sledge hammer) on valve cavity drain line

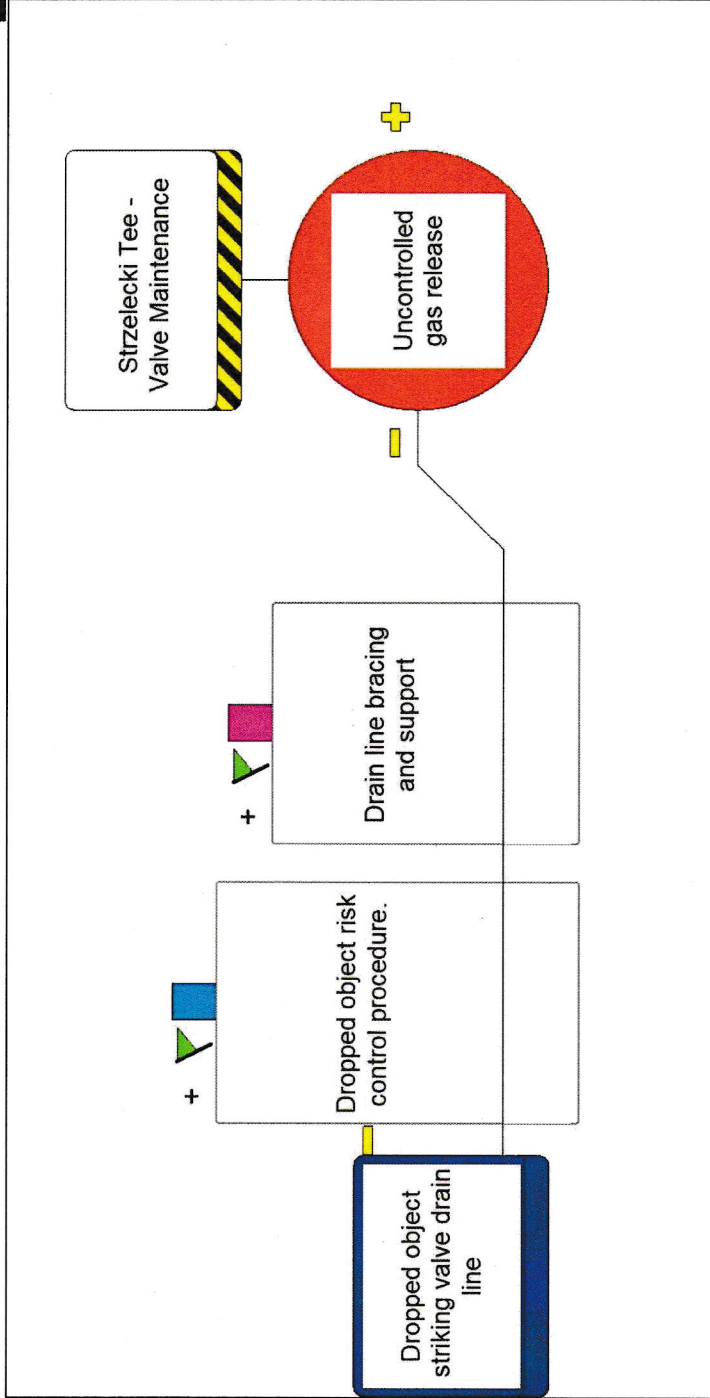


Figure 2: DEM-ERD Bow Tie (preventative controls only) for threat of dropped object onto drain line