



February 4, 2025

Pipeline and Hazardous Materials Safety Administration
1200 New Jersey Ave, SE
Washington, DC 20590

Subject: 2023 Ivanpah Fuel Gas Line – NRG Energy Services
OPID #39027

To whom it may concern,

I am respectfully responding to your letters dated December 10, 2024. NRG Energy Services LLC ("NRG") is submitting this letter in response to the following findings:

Item #2: Requirement: 49 CFR 191.29

Summary: NRG failed to provide accurate geospatial data to PHMSA appropriate for the use of the National Pipeline Mapping System (NPMS) since commissioning of the Ivanpah pipeline system in 2014. Specifically, NRG submitted data that contained inaccuracies regarding the location of the pipeline's diameter change.

During inspection PHMSA discovered in the field inaccuracies in the location data of the pipeline's change in pipeline diameter when compared to NPMS data. Field observations by the PHMSA inspector determined that the location of the diameter reduction from a 6-inch diameter pipe to a 4-inch diameter pipe was actually located within pig launcher station #4, approximately, 4.4 miles downstream from the transfer point between the Kern River pipeline and the Ivanpah pipeline. However, the NPMS geographical data of this pipeline showed the reducer was located approximately 5 miles downstream from the transfer point between the Kern River pipeline and the Ivanpah pipeline. The estimated geospatial difference from the actual reducer location to the reported NPMS reducer location was approximately 3,000 feet. The NPMS Operator Standards manual requires a plus or minus 500-foot accuracy.

Due to the aforementioned geospatial inaccuracies discovered, NRG failed to accurately report regulated onshore transmission line mileage to the NPMS in violation of § 191.29(a)(1).

NRG Response: NRG filed a supplemental NPMS submittal on 7/22/2024 to correct the discrepancies listed above. **Exhibit 1** shows the submission status as "Files received, in queue for QAQC Review".

Item #5: Requirement: 49 CFR 192.465

Summary: NRG failed to take action to correct identified deficiencies within the cathodic protection (CP) system. Specifically, consistent low CP potentials were measured at Test Station #2 of the 6-inch mainline and NRG did not remediate or plan to remediate the inadequate CP. PHMSA reviewed records from an External Corrosion Direct Assessment (ECDA) on the Ivanpah pipeline system completed on December 23, 2021. The ECDA documented inadequate levels of CP from readings taken at Test Station #2.

The documents in the ECDA stated various CP readings along the pipeline were below -850mV and the CP reading around Test Station #2 was roughly -700mV. The document stated "past depolarized reading at the test stations indicate that the pipeline native readings are in the -200 mV to -350 mV range. This indicates that pipeline is still maintaining at least 400 mV or 500 mV of polarization, which greatly exceeds the 100 mV

criterion for protection." PHMSA was not provided with records or other documentation substantiating the claim that adequate levels of CP meeting the 100mV criteria were reaching the Ivanpah fuel gas line. No date was noted in the ECDA report of when the referenced depolarization survey was completed, or other supporting data was provided to PHMSA. Therefore, PHMSA was unable to verify the 100mV criteria had been met based on insufficient records documenting depolarization measurements.

The report stated the area near Test Station #2 was subsequently investigated, excavated, and repainted. CP readings improved, with new CP potential measurements in the -1.026mV range or better. However, during PHMSA's field inspection on October 12, 2023, the CP reading taken at Test Station #2 displayed a voltage potential value of -0.818 volts with protective current applied. The readings demonstrated that the Ivanpah fuel gas pipeline was again not receiving enough CP at the Test Station #2 location, to meet the minimum -850mV criteria. The operator did not provide any other form of evidence, consistent with alternative acceptable criteria noted in Appendix D of Part 192, to demonstrate adequate levels of CP were present on the pipeline. Moreover, NRG did not provide PHMSA with remediation plans regarding the CP.

Because records demonstrated inadequate CP potentials were measured at the same location near Test Station #2, before and after remediation, PHMSA determined the operator did not correct the CP deficiency identified during inspections. Therefore, NRG is in violation of § 192.465(d). Additionally, no verifiable supplementary records were provided to demonstrate the Ivanpah pipeline was still in compliance with other alternative acceptance criteria, and no plans were provided to remediate the issue.

NRG Response: NRG installed additional anodes in November 2024 at test stations #10 and #14. This work was planned for other purposes than listed in the summary above. However, it was NRG's hope that these additional anodes might increase protection at test station #2 as well. In December 2024 it was confirmed that test station #2 still has adequate protection but the additional anodes did not increase protection. NRG has requested a quote from Norton Corrosion to install additional anodes at test station #2. Once this is completed, NRG can provide PHMSA with an update. It was confirmed though in December 2024 by Norton Corrosion that test station #2 does have adequate protection. The readings at that test station are meeting the 100 mV polarization criterion for adequate protection. The test station is not meeting (NACE) SP-0169 6.2.2.1.2 (-850 mV IR Free reading), but is meeting the alternate criterion of 6.2.2.1.3 (100 mV polarization). See **Exhibit 2** for corresponding documentation.

Item #7: Requirement: 49 CFR 192.605

Summary: NRG failed to conduct annual reviews of its emergency response procedures at intervals not exceeding 15 months, as required. Specifically, during inspection, PHMSA reviewed the control room procedure regarding emergency response. PHMSA found that the procedure had not been reviewed on an annual basis by observing that the revision history log of that procedure did not contain any evidence demonstrating the procedure had been reviewed for years of 2015, 2019, 2020, 2022, and 2023. Therefore, NRG failed to conduct a review of the control room emergency response procedures on an annual basis, at intervals not exceeding 15 months in violation of § 192.605(a).

NRG Response: NRG reviews their emergency procedures semi-annually. Documentation of this is shown for the last 5 years on **Exhibit 3**.

Item #8: Requirement: 49 CFR 192.615

Summary: NRG failed to train emergency response personnel, as required. Specifically, during inspection, NRG could not provide any documentation of training for emergency response personnel after the Emergency Tabletop Drill from August 15, 2017.

Due to NRG's inability to produce any records, PHMSA could not verify personnel at the Ivanpah facility were properly trained for emergency response. NRG is therefore in violation of § 192.615(b)(2).

NRG Response: NRG located drill documentation from 2019 and 2022. NRG conducted another drill in August 2024. NRG will ensure drills are conducted with applicable personnel on an annual basis. See **Exhibit 4** for corresponding documentation.

Item #9: Requirement: 49 CFR 192.615

Summary: NRG failed to establish and maintain a liaison with appropriate fire, police, public officials, and utility owners, as required. Specifically, during inspection, NRG could not produce any records of communications, meetings, drills, or any other type of liaison with appropriate emergency responders within the past five years. Due to the lack of records, PHMSA could not verify liaison had been established and maintained with the appropriate emergency responders and public officials near the Ivanpah pipeline. NRG is therefore in violation of § 192.615(c).

NRG Response: NRG provided a liaison packet by mail to local emergency officials in August 2024. NRG has also coordinated with local fire department to schedule an in person meeting. The fire department had to reschedule with NRG and the new meeting date is set for February 6th. NRG will follow up with PHMSA once the meeting has taken place. See **Exhibit 5** for corresponding documentation.

Item #10: Requirement: 49 CFR 192.616

Summary: NRG's public awareness program failed to educate the public, appropriate government organizations, and persons engaged in excavation activities, in multiple instances, as required.

1) NRG failed to specify to emergency responders the type of equipment required to respond to a fire. Specifically, the public awareness mailouts sent to emergency officials directed first-responders to use a "spray" to extinguish a fire. However, another section within the brochure contained language which specifically stated, "don't use water or other chemicals." Upon discussion with NRG, it was determined the intent of the brochure was to suggest the best means to extinguish a fire would be foam spray, however the brochure did not mention the use of foam.

2) NRG failed to clearly educate the public about the Ivanpah pipeline. Specifically, the public awareness mailout for the general public for year 2023 had numerous errors and inconsistencies. The title for the section "How Do I know Where The Pipeline Is Located?" was misspelled in the Spanish version of the brochure. Additionally, NRG failed to explain to the public, in both English and Spanish versions of mailers, that the Ivanpah transmission pipeline was non-odorized and therefore a leak cannot be readily detected by smell. The Spanish version for the "Right-of-Way Encroachment Prevention" section had numerous misspelled words such that the paragraph was illegible. Further, the

brochure that NRG sent to the stakeholders associated with Ivanpah fuel gas line included a statement that said the, "Nippon Dynawave pipeline lies within a High Consequence Area (HCA)". This statement was referring to a different pipeline asset that had a different pipeline location and different release consequences. Moreover, the Ivanpah fuel gas line is not located in an HCA, and therefore is not under an Integrity Management (IM) program. The brochure inaccurately indicated to its audience that the Ivanpah fuel gas line is under an IM program.

Because NRG's public awareness program did not educate stakeholders of the dangers involved with the Ivanpah gas transmission pipeline as required, NRG is therefore in violation of § 192.616(d).

NRG Response: NRG has revised its public awareness mailer to correct grammatical errors and language indicating the gas is odorized. Revisions were also made to the mailer to eliminate confusing information on how to extinguish a fire. See **Exhibit 6** for corresponding documentation.

NOA Item #1: Requirement: 49 CFR 191.5

Summary: NRG's procedures failed to direct personnel when and who to contact for reporting an incident as defined in § 191.3. Specifically, the reporting criteria and contact information within the operations, maintenance, and emergencies (O&M) manual and the Control Room Procedure were incorrect.

Section 5.8 of NRG's Control Room Procedure directed the operator's personnel to contact the USDOT via 800-476-4922 when, "There is a release of gas from a pipeline AND there is a death or personal injury requiring hospitalization or there is estimated property damage, including the cost of gas lost by the Operator or others, of \$50,000 or more or There is an event that is significant in the judgement of the operator, even though it was not as previously described." The 1-800-476-4922 phone number is for the USDOT Hazardous Materials information center, which is not the appropriate contact number when communicating a pipeline incident involving a death has occurred. An operator must contact the National Response Center by telephone at 800- 424-8802 following an incident.

Also, the reportable criteria for monetary-loss values notated within NRG's operations, maintenance and emergencies manual (O&M Manual) and Control Room Procedures were not consistent with each other or the criteria for reportable incidents per § 191.3. Within the Definitions section of § 191.3, incidents are considered reportable if property damage is estimated to be \$122,000 or more. The criteria within the Control Room Procedure's, Section 5.8, stated an estimated property damage of \$50,000 would require notification to PHMSA. The O&M manual's, Section 19.14, stated a cost estimate of \$129,300 would require notification.

NRG must amend its procedures to clearly specify when and how personnel are required to notify PHMSA of an incident.

NRG Response: NRG has revised its O&M Manual and AOP procedures to ensure contact information matches in both plans as well as updated the current incident reporting threshold to \$145,500. See **Sec. 19 Exhibit 7 and Sec. 6 of Exhibit 8.**

NOA Item #2: Requirement: 49 CFR 192.615

Summary: NRG failed to establish and maintain adequate means of communication with appropriate emergency response entities. Specifically, the contact information was found to be inconsistent between the O&M Manual and the Control Room Procedure.

NRG's O&M Manual, Sections 19.7, 19.8, 19.9 each stated, "Notify Ivanpah Solar chain of command. Refer to Section 19.10" and "Notify local emergency officials if necessary. Refer to Section 19.10". NRG's O&M Manual, Section 19.10 did not contain any contact information or instructions for who in the chain of command to contact in the event of an emergency, nor did it include contact information or instructions for contacting emergency officials. Rather, the information for contacting emergency officials is found in Section 19.13 of the O&M Manual. Section 6 of the Control Room Procedure did contain a contact list with numerous internal personnel and outside agencies that should be notified in the event of an incident. However, the contact information, specifically phone numbers, for the San Bernardino's fire department, sheriff's office, and emergency management, within Section 6 of the Control Room Procedure were not consistent with the same emergency officials' contact information within Section 19.13 of the O&M Manual. Thus, NRG must amend its procedures to provide correct contact information regarding who to notify within the chain of command and emergency response personnel within its manuals.

NRG Response: Procedures were updated in both the O&M and AOP to include correct contact information regarding who to notify within the chain of command and emergency response personnel. See **Sec. 19 Exhibit 7 and Sec. 6 of Exhibit 8** for corresponding documentation.

NOA Item #3: Requirement: 49 CFR 192.615

Summary: NRG failed to provide adequate written guidance to minimize the hazard resulting from a gas pipeline emergency. Specifically, during the inspection, PHMSA observed that the O&M manual failed to provide direction for a prompt and effective response to a notice of each type of emergency. The O&M Manual also failed to provide guidance to take necessary actions to minimize hazards of release gas to life, property, or the environment.

For instance, the Ivanpah Fuel Gas Line does not have any compressors along the pipeline.

However, the O&M Manual makes repeated reference to shutting the compressors down in an emergency. O&M Manual, Section 19.7, Unintended Release of Gas 192.615(a)(3)(i), page 170 of 225, stated, "If necessary and it can be done safely, manually shut the compressors down." O&M Manual, Section 19.8, Fire / Explosion, page 171 of 225, stated, "If it can be done safely, shut the compressor(s) down." O&M Manual, Section 19.9, Natural Disaster, page 172 of 225, stated, "If necessary and it can be done safely, manually shut the compressors down." Therefore, NRG must amend its procedures to exclude erroneous tasks for prompt and effective response to a notice of emergency.

Additionally, during the inspection, an NRG representative provided PHMSA with an O&M Manual as well as NRG's Control Room Procedures. The NRG representative stated both may be utilized during an emergency event. However, these two independent manuals do not contain any reference to each other, though both are required in the event of an emergency.

Therefore, NRG must amend its procedures to be consistent and exclude erroneous tasks for prompt and effective response to a notice of emergency while clearly directing personnel as to which manual to use during an emergency.

NRG Response: NRG removed references to compressors and any other erroneous language that could be misleading. See Sec.19.7-19.9 of **Exhibit 7** for corresponding documentation.

NOA Item #4: Requirement: 49 CFR 192.615

Summary: NRG failed to describe, within its O&M manual, the availability of equipment, tools, and materials, as needed at the scene of an emergency.

O&M manual, Section 19.19, Post-Incident Effectiveness Review 192.615(b)(3), page 183 of 255, Paragraph 4 Release and Discharge, contained a question, "Was adequate equipment provided to aid in the isolation of the oil spill leak?" The Ivanpah pipeline system is a Fuel Gas pipeline that does not transport liquid hydrocarbons. The same page also included the question, "Were personnel capable and properly utilize equipment?" However, no other section within the O&M Manual described or listed equipment, tools, or materials needed at the scene of an emergency consistent with a gas transmission pipeline. NRG must therefore amend its procedures to include the availability of personnel, equipment, tools, and materials needed at the scene of an emergency involving a gas transmission pipeline release.

NRG Response: NRG has updated Sec. **19.12 of Exhibit 7** to clarify that Patriot Environmental has the necessary tools and equipment and will be utilized for emergency response if needed.

NOA Item #5: Requirement: 49 CFR 192.615

Summary: NRG's procedures fail to adequately direct operator personnel on which necessary actions to take during an emergency, including but not limited to, emergency shutdown, valve shut-off or pressure reduction, in any section of the Ivanpah Fuel Gas pipeline, to minimize hazards of released gas to life, property, or the environment. Specifically, NRG's O&M Manual, Section 3.4, Shutdown Procedures, page 15 of 225, stated, "NOTE: See Section 19.18 for Emergency Shutdown procedure" and Section 19.2, Response Guidelines, page 167 of 225, of the O&M Manual stated, "Refer to Section 19.18 for emergency shutdown procedures." However, Section 19.18 of the O&M Manual, titled Investigation of Failure, on page 179 of 225, was not an emergency shut-down procedure. Section 19.18, only referred to the investigation of failures. Indeed no emergency shutdown procedures were observed to be contained within the O&M Manual.

Additionally, NRG's O&M Manual did not contain any procedures on which specific valves must be operated during an emergency to shut down the pipeline as a whole or any section of the pipeline system. The lack of information was noted in the emergency response, Tabletop exercise documentation on August 15, 2017. While providing feedback on the drill, employees noted a lack of pipeline drawings, valve location maps, and detailed descriptions of which valve(s) would be required to be closed during the exercise. NRG must therefore amend its procedures in accordance with § 192.615(a)(6).

NRG Response: NRG has referenced the AOP document in **Sections 19.7-19.9 of Exhibit 7. Section 6.2.2 of Exhibit 8** does specify which valves need to be operated for stopping the flow of gas. This section also provides operator personnel on which necessary actions to take during an emergency, including but not limited to, emergency shutdown, valve shut-off or pressure reduction, in any section of the Ivanpah Fuel Gas pipeline, to minimize hazards of released gas to life, property, or the environment.

NOA Item #6: Requirement: 49 CFR 192.615

Summary: NRG's O&M manual failed to clearly direct an operator to the correct section of the O&M Manual to safely restore any pipeline after an outage. Specifically, NRG's O&M manual, Section 19.16, Post Incident Procedures, 192.615(a)(9), page 177 of 225, stated, "Slowly bring the pipeline into service, monitoring pressures. Refer to Section 19.17 for requirements to place a pipeline system back into service after an emergency."

However, O&M manual, Section 19.17, page 178 of 225, titled "Incident Documentation" did not contain any procedures directing operator personnel on how to bring the Ivanpah pipeline back into service. Those procedures were found in Section 19.20 of the O&M Manual, page 185 of 225, titled "Placing System Back into Service 192.605(a)(5)," Section 19.20 described all the procedural steps to bring the Ivanpah pipeline back into service.

Therefore, NRG must amend its procedures to direct personnel to the appropriate section within the O&M Manual to safely restore the system back to normal operations.

NRG Response: NRG has updated its O&M Manual to reference the correct section to safely restore any pipeline after an outage. That reference is the "Restoration of Gas Services due to Outage" procedure in **Sec. 19.18 and 19.22 of Exhibit 7.**

NOA Item #7: Requirement: 49 CFR 192.615

Summary: NRG's procedures do not include instructions on how to evaluate and identify whether a notification of potential rupture, as defined in § 192.3, is an actual rupture or non-rupture event. Specifically, a review of NRG's O&M Manual, Section 19.11, Rupture Identification Procedure 192.615(a)(12), page 173 of 225, revealed that while the language included § 192.615(a)(12), "Ivanpah Solar must develop written rupture identification procedures to evaluate and identify whether a notification of potential rupture, as defined in 192.3, is an actual rupture event or a non-rupture event", the procedures did not include any instructions on how or what step the operator's personnel would need to take to evaluate and identify whether a notification of potential rupture was an actual rupture event.

Therefore, NRG must amend its procedures to develop written rupture identification procedures as described pursuant to § 192.615(a)(12).

NRG Response: NRG has updated Section 19.10 of the O&M manual laying out written rupture identification procedures. See **Exhibit 7** for corresponding documentation.

NOA Item #8: Requirement: 49 CFR 192.631

Summary: NRG's procedures fail to include requirements to test and verify its internal communications plan to provide adequate means for manual operator of the pipeline safely at least once each calendar year, at intervals not to exceed 15 months, as required. Specifically, neither NRG's O&M Manual or Control Room Procedures include this requirement.

NRG's O&M Manual included discussion of an internal communication plan during a SCADA failure, abnormal operating condition, or emergency event. Similarly, NRG's Control Room Procedure included discussion of an internal communication plan, in greater depth than in the O&M manual. However, neither of the manuals explicitly required testing and verification of an internal communication plan to provide adequate means for manual

operation of the pipeline, at least once each calendar year, but at intervals not to exceed 15 months. Therefore, NRG must amend its procedures to include testing and verifying its internal communications plan to provide adequate means for safe manual operation of the pipeline at least once each calendar year, at intervals not to exceed 15 months.

This procedural omission correlated with the lack of internal communication plan testing and verification activities. With the exception of NRG Ivanpah ER Drill Records, Tabletop Exercise, dated August 15, 2017, NRG could not provide evidence to demonstrate the testing and verification of any internal communication plan. Furthermore, statements from NRG Ivanpah's employees, who participated in the exercise on August 15, 2017, included "Control Room did not use emergency information sheet", "3 way communication lacking", "3 way was not used by control room" & "No 3 way communication".

NRG Response: NRG added Section 6.14 to IVP.OP.AOP.14, which provides requirements to test and verify its internal communications plan to provide adequate means for manual operator of the pipeline safely at least once each calendar year, at intervals not to exceed 15 months, as required. See **Exhibit 8** for corresponding documentation.

NOA Item #9: Requirement: 49 CFR 192.635

Summary: NRG's O&M Manual failed to include procedures that define an unanticipated or unexplained pressure loss outside of the Ivanpah pipeline's normal operating pressures that would indicate a potential rupture. Specifically, while the O&M Manual, Section 19.10, Notification of Potential Rupture 192.635, page 173 of 225, contained language that included § 192.635(a)(1), this language was unclear as to what criteria was to be used in order to quantify a pressure-loss that indicates a potential rupture, stating in part "unless Ivanpah Solar has documented in its written procedures the operational need for a greater pressure-change threshold..."

Therefore, NRG must amend its procedures to clearly state which quantifiable pressure-loss criteria, within Section 19.10, was intended to be utilized to demonstrate a potential rupture had occurred.

NRG Response: NRG revised Section 19.10 of its O&M Manual to include procedures to clearly state which quantifiable pressure-loss criteria, within Section 19.10, was intended to be utilized to demonstrate a potential rupture had occurred. See **Exhibit 7** for corresponding documentation.



NRG Energy Services is committed to full compliance with the requirements of PHMSA. I appreciate your consideration in this matter. Please let me know if you have any questions or require additional information.

Sincerely,
Nicholas Volturno
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on behalf of NRG Energy Services LLC
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